


```

XX XX Neisseria meningitidis.
OS
XX
XX WO200066791-A1.
PN
XX
XX 09-NOV-2000.
PD
XX
XX 08-MAR-2000; 2000MO-US05928.
PF
XX
XX 30-APR-1999; 99US-0132068.
PR
XX 08-OCT-1999; 99WO-US23573.
PR
XX 28-FEB-2000; 2000GB-0004695.
PA
XX (CHIR ) CHIRON CORP.
XX (GENO-) INST GENOMC RES.
PI
XX Pizza M, Hickey E, Peterson J, Tettelin H, Venter JC, Masignani V;
PI Galeotti C, Mora M, Ratti G, Scarselli M, Scariato V, Rappuoli R;
PI Frazer CM, Grandi G;
XX
XX WPI: 2000-647603/62.
DR
XX N-PSDB; AAF21588.
PT
XX Neisseria meningitidis B full length genome sequence and open reading
PT frames are used to detect, treat and prevent Neisserial infections -
XX
XX
XX
XX
XX Example 1: Page 115; 692pp; English.
XX
XX The present invention describes the full length genome of
XX Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607
XX CC to AAF21613 represent fragments of the NMB genomic sequence, as the
XX CC sequence was too long to go in a record on its own. It was split into 8
XX CC sequences which overlap each other at the beginning and end of each
XX CC sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at
XX CC the beginning of AAF21607, the last 49980 bp of AAF21607 are repeated at
XX CC the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the
XX CC Neisseria proteins given in AAB58550 to AAB58593, and AAF21589 to
XX CC AAF21606 represent PCR primers which are used in the exemplification of
XX CC the present invention. The NMB genome and fragments from it have
XX CC antibacterial activity, and can be used in vaccines and gene therapy.
XX CC Neisseria nucleic acids, proteins and/or antibodies which binds to the
XX CC proteins can be used in compositions for treating or preventing infection
XX CC due to Neisserial bacteria or as a diagnostic reagent for detecting the
XX CC presence of Neisserial bacteria or of antibodies raised to Neisserial
XX CC bacteria. Computers, computer memory, computer storage medium or computer
XX CC databases can be used in a search to identify open reading frames (ORFs)
XX CC or coding sequences within the NMB genome. The DNA sequences provide
XX CC further opportunities to find antigenic or immunogenic proteins which are
XX CC more effective in vaccines
XX
XX
XX Sequence 608 AA:
XX
XX
XX
XX
XX alignment_scores:
XX Quality: 2229.00 Length: 543
XX Ratio: 4.712 Gaps: 5
XX Percent Similarity: 87.109 Percent Identity: 80.479
XX
XX
XX alignment_block:
XX US-09-303-518D-465 x AAB58593 ..
XX
XX
XX Align seg 1/1 to: AAB58593 from: 1 to: 608
XX
XX 1 TTGGGCAATTTCCCGCAAAATATCCCTATTCTGTCCATACGTGAGTGTG 50
XX |||||||
XX 1 LeuGlyIleSerArgylsIleSerIleuIleLeuSerIleuAlaValcy 17
XX |||||||
XX 51 CCTGCCGATGCATGCACACGCGCTCAGATTGGCAAAAGATTCTTTATCC 100
XX |||||||
XX 17 sleuPromethisAlahisIasSerAspleuAlaAnaSperPhelIea 34
XX |||||||
XX 101 GGCGAGGTTCTCGACCGTCAGCATTTTGAACCCGACGGGAATATACACCTA 150
XX |||||||

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[illegible]

```

1051 AAAGGAAATCCCGCTCAGCACAATTTGGCCATCGCGATACGCCAA 1100
1101 ATACCGCTCCCTTACATCCGGAATATCGTTCAACCTGGAGCAGC 1150
351 LysGlyLysSerAlaValSerAspSerPheAlaAlaIaIaIaIaIaIa 367
367 sTyProSerProTyrHisSerArgAsnIleArgSerAsnLeuGluGlnA 384
1151 GTTAGGCAAGAAACATCACCTCTCACCCTGCCCGCCGTCACACGA 1200
384 IgtYrGlyLysGluAsnIleThrSerSerThrValProProSerAsnGly 400
1201 AAGATGTGAACTGGCAAAACAGCCACCGCCGTCACCAAGTCCGCTT 1250
401 LysAsnValLysLeuAlaAspIleThrGlyProLysThrGlyValProPh 417
1251 TGACGGTAAAGGTTCCGAATTTTGAAAGACGTAAATATACGATACGA 1300
417 eAspGlyLysGlyPheProAsnPheGluLysHisValLysTyrAspThrL 434
1301 GAATTAATACCGCTGTACCACAGTGAAT.....CCTATAGAT 1338
434 ySLeuAsp.....IleGlnGluLeuSerGlyGlyIleProLysAla 448
1339 GAACCCGCTTTAATCTAAAGTCTGTGCGATCGGCTCATTTTGGTC 1388
449 LysProValPheAspAlaLys.....ProArgTyrGly 459
1389 TATAACTGCCAGATTCATACGCAAAATTCACCAAGGAGGTAGAACCA 1438
459 uValAspArgLysLeuAsnLysLeuThrThrArgGluGlnValGluLys 475
1439 GATTAATCCCACTAAATTAATCTCTCTCAGCACCGCTACCAAAAGA 1488
476 AsnVal..... 477
1489 CCTAATATGATATTGGATTAATTTGGTATGAATGAGATAAGGTCC 1538
477 ..... 477
1539 ATCAAGAACTAAAGGTCAAGATTTGAATGGAGTGTCAATTTCTAAAA 1588
478 ..GlnGluIleArgAsnGlyAsnIleAsnSerAsnPheSerGlnHisAla 493
1589 CAGGAAGAGACGACTGTGATGGGCTA 1615
494 GlnLeuGluArgGluIleAsnLysLeu 502
seq_name: /SIDS1/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:AAU27560
seq_documentation_block:
ID AAU27560 standard; Protein: 608 AA.
XX
AC AAU27560;
XX
XX 18-DEC-2001 (first entry)
DE Neisseria meningitidis ORF46 protein sequence.
XX
XX Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
KW Neisserial protein.
XX
XX Neisseria meningitidis.
OS
PN WO200164922-A2.
XX
XX 07-SEP-2001.
PD
XX
XX 28-FEB-2001; 2001WO-IB00452.
PF
XX 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
PR

```

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XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI Pizza M;
XX
DR WPI; 2001-582163/65.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae.
PS
XX Claim 2; Page 25; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC AAU27553-AAU27610 represent Neisserial proteins and peptide regions of
CC proteins of the invention.
XX
SQ Sequence 608 AA:

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alignment_scores:
Quality: 2227.00 Length: 492
Ratio: 4.810 Gaps: 4
Percent Similarity: 94.106 Percent Identity: 86.789

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alignment_block:

US-09-303-518D-465 x AAU27560 ..

Align seq 1/1 to: AAU27560 from: 1 to: 608

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1 TTGGCATTCCCGCAAAATATCCCTATTCCTGCTACGACAGTGTG 50
1 LeuGlyIleSerArgLysIleSerLeuIleLeuSerIleLeuAlaValGly 17
51 CCTGCCGATGATGACACACGCTCAGATTGGCAAAAGATTCCTTATCC 100
17 sLeuProMetHisAlaHisAlaSerAspLeuAlaAsnAspSerPheIleA 34
101 GGCAGGTTTCGACCGCTCAGCATTTGCAACCCGACGGGAATACACCTA 150
34 rGlnValLeuAspArgGlnHisPheGlnProAspGlyLysTyrHisLeu 50
151 TTGCGCAGCAGGGGGAACTTGGCGAGCGACGGGTCAATCGGATTGGG 200
51 PheGlySerArgGlyGluLeuAlaGluArgSerGlyHisIleGlyLeuG 67
201 AAACATACAAAGCCATCATGTTGGCAACCTGTTCAATCCAGACGGGCCA 250
67 YLysIleGlnSerHisGlnLeuGlyAsnLeuMetIleGlnAlaIaIa 84
251 TTAAGGAATATGCGCTACATGTCCGCTTTTCCGATACACGGGCAGAA 300
84 IeLysGlyAsnIleGlyTyrIleValArgPheSerAspHisGlyHisGlu 100
301 GTCCATTCCTCCCTCGACACACATGCTCAGATTCGATTCGATGAGG 350
101 ValHisSerProPheAspAsnHisAlaSerHisSerAspSerAspGlu 117
351 CGGTAGTCCCGTTGACGAGATTACGCTTTACCGCATTCATGGAGCGAT 400
117 aGlySerProValAspGlyPheSerLeuTyrArgIleHisIleIleAsp 134
401 ACGAACACATCCCGCGGAGGCTATGACGGGCGACAGGGCGGCGGTAT 450
134 yTyrGlnHisHisProAlaAspGlyTyrAspGlyProGlnGlyGlyGlyTyr 150

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451 CCCGCTCCCAAGCGCGAGGATATATACGCTACGACATAAAGCGT 500
151 ProAlaProLysGlyAlaArgAspIleTyrSerTyrAspIleLysGlyAla 167
501 TGCCCAAAATATCCGCTCAACTGACCGACAACCCGACCGGAGCAGC 550
167 LAlaGlnAsnIleArgLeuAsnIleThrAspAsnArgSerThrGlyGln 184
551 GGCTGTGACCGCTTCCAAATATGCTAGTATGCTGACGCAAGAGTA 600
184 rGleuAlaAspArgPheHisAsnAlaGlySerMetLeuThrGlnGlyVal 200
601 GCGGAGGATTCAAACGCGCACCGCATACAGCCCGAGCTGGACGATC 650
201 GlyAspGlyPheLysArgAlaThrArgTyrSerProGluLeuAspArgSe 217
651 GGGCATAGCGCGCGAGCTTTCAGGCACTGAGATATCGCAAAAACA 700
217 rGlyAsnAlaAlaGlnAlaPheAsnGlyThrAlaAspIleValLysAsnI 234
701 TCATCGCGCGCGAGGAGAAATGTGCGCGACGATCGCTGACAGGT 750
234 lIleGlyAlaAlaGlnGlyGluIleValGlyAlaGlyAspAlaValGlnGly 250
751 ATAAGCGAAAGGCTCAACATGTGCTTATGACAGCGCTTGCTGCTTC 800
251 lIleSerGluGlySerAsnIleAlaValMetHisGlyLeuGlyLeuLeuSe 267
801 CACCGAAACAGATGGCGCGATCAAGATTTGGCAGATATGGCGCAGC 850
267 rThrGluAsnLysMetAlaArgIleAsnAspLeuAlaAspMetAlaGlnL 284
851 TCAAGACTATGCGCGAGCAGCATCGCGATGGCGAGTCCCAAAACCC 900
284 euLysAspTyrAlaAlaAlaAlaAlaIleArgAspTrpAlaValGlnAsnPro 300
901 AATCGCGCAAGGCAATAGAACCGTCAGCAATATCTTACGCGAGTCAT 950
301 AsnAlaAlaGlnGlyIleGlyAlaValSerAsnIlePheMetAlaAlaI 317
951 CCGCGTCAAAAGGATGGAGCTGTGCGGAAATATCGCTGGCGGCA 1000
317 eProIleLysGlyIleGlyAlaValAlaArgIlyLysTyrGlyLeuGlyGlyI 334
1001 TCAAGGACATCTCTCAAGCGGTCGACATGGCGAGATCCGATTCGCG 1050
334 lThrAlaHisProIleLysArgSerGlnMetGlyAlaIleAlaLeuPro 350
1051 AAAGGAAATCCGCGCTCAGCGACAATTTGCCGATCGCGCATACGCCAA 1100
351 LysGlyLysSerAlaValSerAspAsnPheAlaAspAlaIleTyrAlaL 367
1101 ATACCGCTCCGCTTACCATTCGCGAAATATCGCTCAAACTTGAGCGAC 1150
367 sTyrProSerProTyrHisSerArgAsnIleArgSerAsnLeuGlnGlnA 384
1151 GTTACGCGCAAGAAACATCACCTCTCAACCGTCCGCGCTCAACAGGA 1200
384 rGlyTcIlyLysGlnAsnIleThrSerThrValProProSerAsnGly 400
1201 AAGATGTGAACCTGCGCAACAAAGCCGCAAGACCAAGACCGCGCTT 1250
401 LysAsnValLysLeuAlaAspGlnArgHisProLysThrGlyValProPh 417
1251 TGACGGTAAAGGTTTCGAATTTGAAAGCAAGCAATCAATCGATACGA 1300
417 eAspGlyLysGlyPheProAsnPheGluLysHisValLysTyrAspTrpL 434
1301 GAATTAATATAC.....GCTGTACCAACAAGTAATGATCT 1332
434 yLeuAspIleGlnGlnLeuSerGlyGlyIleProLysAlaLysPro 450
1333 ATAGATGAACCGCTCTTAATCTTAAGGTTCTGTCGATCGCGCTCATTC 1382

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.....:
451 ValSerAspAla.....LysProArg..... 457
1383 TTGGCTATTAATCCGCAATTCATACGCAAAATTCACAGCAAGTA 1432
458 .TrpGluValAlaAspArgLysLeu..AsnLysLeuThrThrArgGluGlnVal 473
1433 GAATCAGATATATCCCACTTAA 1456
474 GluLysAsnValGlnGlnIleArg 481

```

seq.name: /SIDSI/gcgdata/geneseq/geneseqp_emb1/AA2001.DAT:AAE10012

seq_documentation_block:

ID AAE10012 standard; protein; 608 AA.

AC AAE10012:

DT 29-NOV-2001 (first entry)

DE Neisseria meningitidis strain 2996 ORF46 (open reading frame) protein.

KM Heterologous expression; Neisserial protein; ORF46; open reading frame.

XX Neisseria meningitidis 2996.

OS Location/Qualifiers

FT Key 1..24

FT Peptide /label= Signal_peptide

FT Protein 25..608 /label= Mature_ORF46_protein

XX MO200164920-A2.

PD 07-SEP-2001.

XX 28-FEB-2001; 2001WO-1B00420.

XX 28-FEB-2000; 2000GB-0004695.

PR 13-NOV-2000; 2000GB-0027675.

XX (CHIR-) CHIRON SPA.

PA Arico MB, Comanducci M, Galeotti C, Maignani V, Giuliani MM; Piza M;

XX WPI; 2001-557776/62.

XX Heterologous expression for the expression of two or more Neisserial

PT proteins in fused state

XX Claim 7: Page 5-6; 52pp; English.

XX The present invention relates to a method for simultaneous heterologous

CC expression of two or more Neisserial proteins which are in a fused

CC state. The method is useful for simultaneous heterologous expression of

CC two or more Neisserial proteins. A protein that may be unstable or

CC poorly expressed on its own is assisted by adding a suitable hybrid

CC partner and commercial manufacture is simplified only one expression and

CC purification need to be employed in order to produce two separately-

CC useful proteins. The present sequence is Neisseria meningitidis

CC (serogroup B, strain 2996) ORF46 (open reading frame) protein.

SO Sequence 608 AA:

alignment_scores:

Quality: 2227.00

Ratio: 4.810

Percent Similarity: 94.106

Percent Identity: 86.789

alignment_block:

US-09-303-518D-465 x AAE10012 ..

Align seg 1/1 to: AAE10012 from: 1 to: 608

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1 TTGGGATTTCCGCAAAATATCCCTTATCTGTCCATCTAGTCAGAGTGG 50
1 LeuGlyIleSerArgPheLysIleSerIleLeuSerIleLeuAlaValCys 17
51 CCTGCCGATGCATGCACAGCCCTCAGATTTGGCAAAAGATCTTTATCC 100
17 sLeuProMetHisAlaHisAlaSerAspLeuAlaAsnAspSerPheIleA 34
101 GCGAGGTTCTCGACCGCTCAGCATTTGAAACCGCAGCGGAAATACCCCTA 150
34 rGlnValIleuAspArgGlnHisPheGluProAspGlyLysTyrHisLeu 50
151 TTGGGAGCGAGGGGGAACTTCCGAGCGAGCGGTCATATCGATGGG 200
51 PheGlySerArgGlyLysIleuAlaGlnArgSerGlyHisIleGlyLeuCl 67
201 AAACATACAAAGCCATCAGTTGGCAACCTGTTCATCCAGCAGCGGCGCA 250
67 yLysIleGlnSerHisGlnLeuGlyAsnLeuMetIleGlnGlnAlaIle 84
251 TTAAAGAAATATCGCTACATTTGCGCTTTCCATCCAGCGGCGCA 300
84 LeuysGlyAsnIleGlyTyrIleValArgPheSerAspHisGlyHisGlu 100
301 GTCCATTCCTCCCTTCGACACCATGCTTCATTCGATCTGATNAGC 350
101 ValHisSerProPheAspAsnHisAlaSerHisSerAspSerArgIle 117
351 CGGTAGTCCGCTTGACGATTCAGCCTTTACCCGATCCATTTGGAGCGAT 400
117 agLysSerProValAspGlyPheSerLeuTyrArgIleHisIleIleIle 134
401 ACAGACACCATCCCGCGAGCGCTATACAGCGGCGCAGCGGCGGCTT 450
134 yrgLHisHisIleProIleAspGlyTyrAspGlyProGlnGlyGlyTyr 150
451 CCGGCTCCCAAGCGGAGGATATATACAGTACGACATATAAAGCGGT 500
151 ProIleProLysGlyAlaArgAspIleTyrSerTyrAspIleLysGlyVa 167
501 TGCCCAAAATATCCGCTCAACCTGACCGACGACACCGCAGCAGCAG 550
167 lAlaGlnAsnIleArgLeuAsnLeuThrAspAsnArgSerThrGlyGlnA 184
551 GCGTTGTGACCGCTTCCACAATACCGGTATAGCTGAGCCAGAGGATA 600
184 rGleuAlaAspArgPheHisAsnAlaGlySerMetLeuThrGlnGlyVal 200
601 GCGGAGGATTCAAAGCGCGCAGCATACAGCCCGAGCTGAGACATC 650
201 GlyAspGlyPheLysArgAlaThrArgTyrSerProGluLeuAspArgSe 217
651 GGGCAATGCCCGCGAAGCTTTCAACGCGCATGACGATATCGTCAAAAACA 700
217 rGlyAsnAlaIleGlnAlaPheAsnGlyThrAlaAspIleValIlysAsnI 234
701 TCATCGCGCGCGCAGAGAAATTTGCGCGCAGCGGATCCGCTCAGGCT 750
234 lLeIleGlyAlaIleGlyIleValGlyAlaGlyAspAlaValGlnIle 250
751 ATACGGAAGGCTCAACATGCTGTATGACGCGCTGGGCTGCTTTC 800
251 lIleSerGlyGlySerAsnIleAlaValMetHisGlyLeuGlyLeuSe 267
801 CACCGAAAACAAGATGCGCGCATACAGATTTGGCAGATATGGCGCAAC 850
267 rThrGluAsnLysMetAlaArgIleAsnAspLeuAlaAspMetAlaGlnL 284
851 TCNAAGACTATGCGCGAGCAGCATCCGATTTGGCGAGTCCAAAACCC 900

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284 eulysAspTyrAlaAlaAlaIleArgAspTrpAlaValGlnAsnPro 300
901 AATGCCGCACAGGCAATPAGAACCCGTCAGCAATATCTTTACGGACAT 950
301 AsnAlaIleGlnGlyIleGlnAlaValSerAsnIlePheMetAlaAlaI 317
951 CCGCGTCAAAAGGANTGGAGCTTTCCGGGAAATPACGGCTTGGCGGCA 1000
317 eProLysGlyIleGlyAlaValArgGlyLysTyrGlyLeuGlyIle 334
1001 TCACGACATCTGTCAAGCGGTCCGAGATGGCGGAGATCGATTGCCG 1050
334 lThrAlaHisProLysArgSerGlnMetGlyAlaIleAlaLeuPro 350
1051 AAAGGAAATCCCGCGTCAGGACATTTTCCGATCGGCGCATACGCCAA 1100
351 LysGlyLysSerAlaValSerAspAsnAlaAspAlaAlaTyrAlaL 367
1101 ATACCGTCCCTTCACATTCGCCGAATATCCGTTCAACTTGGAGCAGC 1150
367 sTyrProSerProTyrHisSerArgAsnIleArgSerAsnLeuGlnA 384
1151 GTTACGCAAAAGAAACATCACTTCCTCAACCGTCCGCGCTCAACGCA 1200
384 rGlyGlyLysGluAsnIleThrSerSerThrValProProSerAsnGly 400
1201 AAGATGTGAACCTGGCAAAACACCCGCAAGACCAAGTCCCTT 1250
401 LysAsnValLysLeuAlaAspGlnArgHisProLysThrGlyValProPh 417
1251 TGACGGTAAGGTTTCCGAATTTGAAAGACGCTAAATACGATACGA 1300
417 eAspGlyLysGlyPheProAsnPheGluLysHisIleValLysTyrAspThrL 434
1301 GAATTAATACC.....GCTGTACCAACAAGTAAATCCT 1332
434 ySLeuAspIleGlnGlnLeuSerGlyGlyIleProLysAlaLysPro 450
1333 ATAGATGAACCGGTCTTATATCTTAAGGTTCGTGCGGATCGCTCATTC 1382
451 ValSerAspAla.....LysProArg..... 457
1383 TTGGTCTATACCTGCCAGATTCATACGCAAAATATACCAAGGAGTA 1432
458 .TrpGluValAspArgLysLeuAsnLysLeuThrThrArgGlyGlnVal 473
1433 GAATCAGATATATCCACCTAAA 1456
474 GluLysAsnValGlnGlnIleArg 481

seq_name: /SID1/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.AAB25663
seq_documentation_block:
ID AAB25663 standard; Protein: 608 AA.
XX
AC AAB25663;
XX
DT 04-DEC-2000 (first entry)
XX
DE N. meningitidis amino acid sequence orf46-2.pep SPO ID NO:1049.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; genome; immunogenic;
KW antigen; vaccine; diagnosis; infection; antibacterial; identification;
KW Meningococcus B; MemB.
XX
OS Neisseria meningitidis.
XX
PN WO200022430-A2.
XX
PD 20-APR-2000.
XX
PF 08-OCT-1999; 99WO-US23573.
XX

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PR 09-OCT-1998; 98US-0103794.
 PR 30-APR-1999; 99US-0132068.
 XX
 PA (CHIR) CHIRON CORP.
 XX
 PI Frazer CM, Hickey E, Peterson J, Tettein H, Venter JC;
 PI Maignani V, Galeotti C, Mora M, Ratli G, Scarselli M, Scarlato V;
 PI Rappuoli R, Pizza M;
 XX WPI; 2000-318079/27.
 DR N-PSDB; AAA81303.
 XX

Isolated nucleotide sequences of *Neisseria meningitidis* which can be used in the diagnosis and treatment of *N. meningitidis* infection and other *Neisseria* infections, for example, *N. gonorrhoea*.

Example 1; Page 114; 1760pp; English.

The present invention describes methods of obtaining immunogenic proteins from *Neisseria* genomic sequences. AAA81453 to AAA82414 represent specifically claimed *Neisseria meningitidis* genomic DNA sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent *Neisseria* DNA sequences and their corresponding proteins; AAA81254 to AAA81259 and AAA81304 to AAA81321 represent PCR primers used in the isolation of *Neisseria meningitidis* DNA sequences; and AAA81322 to AAA81452 represent *Neisseria meningitidis* MemB polynucleotide ORF sequences, which are all used in the exemplification of the present invention. The nucleic acid sequences, protein sequences, and antibodies against them, can be used in the manufacture of a composition. The composition can be used as a medicament (or in the manufacture of a medicament) for treating, preventing or diagnosing infection due to *Neisseria* bacteria. For example, some of the identified proteins could be components of vaccines against *Meningococcus B*; against all serotypes; and/or against all pathogenic *Neisseriae*. Identification of sequences from the bacterium will also facilitate production of biological probes, particularly organism-specific probes. Attempts to make efficacious *Meningococcus B* vaccines have failed mainly due to antigen tolerance. Multivalent vaccines have also been tried but none have successfully overcome antigenic variability. The provision of further, complete sequences may provide an opportunity to identify secreted or surface exposed proteins that may be presumed targets for the immune system and which are not antigenically variable or at least more conserved than other more variable regions.

Sequence 608 AA:

alignment_scores:
 Quality: 2225.00 Length: 543
 Ratio: 4.704 Gaps: 5
 Percent Similarity: 87.109 Percent Identity: 80.295

alignment_block:

US-09-303-518D-465 x AAB25663 ..

Align seg 1/1 to: AAB25663 from: 1 to: 608

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1 TTGGGCAATTCCTCCGCAAAATATCCCTATTGTCGCACTGCGAGTGTG 50
1 |||||
1 LeuGlyIleSerArgLysIleSerLeuIleLeuSerIleLeuAlaValCyl 17
51 CCTGCCGATGCATGCACAGCGCTCAGATTGGCAAGCATTCCTTTATTC 100
51 |||||
51 sLeuPromethisAlaHisAlaSerAspLeuAlaAsnAspSerPheIleA 34
17 sLeuPromethisAlaHisAlaSerAspLeuAlaAsnAspSerPheIleA 34
101 GCGAGGTTTCGACCGTCAGCATTTGCAACCGACGGAATACCACTTA 150
101 |||||
34 rGlnValIleuAspArgLHisPheGlnProAspArgLysTyrHisLeu 50
151 TTGGGAGGAGGGGGGAACTTCCGAGCGAGCGAGGTATATCGGATTGG 200
151 |||||
51 PheIleSerArgLysIleLeuAlaGlnArgSerCylHisIleGlyLeuG 67

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201 AAACATCAAAAGCCATGATGGGCAACCTGTTCATCCAGAGCGGCCA 250
201 |||||
67 YLysIleGlnSerHisGlnLeuGlnLeuMetIleGlnIleAlaIle 84
251 TTAAGGAATATATGCGCTACATGCTGCTTTCCGATCAGGAGCAGAA 300
251 |||||
84 LeuYsGlnIleGlnIleGlnIleValArgPheSerAspHisGlnIle 100
301 GTCCATTCCTCCCTTCGACAAACCATGCTCAGATTCGATTCGTAGAC 350
301 |||||
101 ValHisSerProPheAspAsnHisAlaSerHisSerAspSerArgIle 117
351 CGGTAGTCCTGTCAGGATTCAGCTTTCACCGATTCGATTCGATTCGAT 400
351 |||||
117 ArgIleProValAspArgLysSerIleTyrArgIleHisIleTrpAsp 134
401 AGAAGACATCCCGCCGAGCGCTATGACGGCCACAGGGCGGCGCTAT 450
401 |||||
134 YrGlnHisIleProAlaAspArgLysTyrAspArgLysGlnIleTyr 150
451 CCCGCTCCCAAGGCGGAGGATATATACAGCTACAGCAATAAAGCGT 500
451 |||||
151 ProAlaProLysGlnIleAlaArgAspIleTyrSerTyrAspIleLys 167
501 TGCCCAAAATATCCGCTCAACCTGACAGCAACCGAGCGAGCGAGCAAC 550
501 |||||
167 IAlaGlnAsnIleArgLeuAsnLeuThrAspAsnArgSerThrGln 184
551 GCGTTGCAACCGTTTCACATATCCGATATGCTGACGCAAGAGAGA 600
551 |||||
184 rLeuAlaAspArgPheHisAlaGlnIleSerMetLeuThrGlnIle 200
601 GGGGAGGATTCAAACGCGCCACCGATACAGCCCGGAGCTGAGCAATG 650
601 |||||
201 GlnAspArgLysSerArgLysIleArgLysSerProGlnLeuAspArg 217
651 GGGCAATGCGCGCGAGCTTCAACGCGCATCGATATCGTCAAAAGA 700
651 |||||
217 rGlnAlaAlaIleGlnIleAlaPheAsnGlnIleThrAlaAspIleVal 234
701 TCATTCGCGCGGAGAGAGAAATGTTGGCGAGCGAGCTGCGAGGAT 750
701 |||||
234 IeIleGlnAlaAlaGlnIleGlnIleValGlnIleAspAlaValGln 250
751 ATAGCGAAGGCTCAAAACATGCTGTTATGCAAGCGCTGCTGCTTC 800
751 |||||
251 IleSerGlnIleGlnIleAlaValMetHisGlnIleGlnIleLeu 267
801 CACGGAAGAGATGCGCGCATCAACGATTTGGCAGATATGGCGCAAC 850
801 |||||
267 rThrGlnAsnLysMetAlaArgLysAsnAspLeuAlaAspMetAlaGln 284
851 TCAAGAGTATGCGCGAGCGAGCATCCGATTTGGCGAGTCCAAACCC 900
851 |||||
284 euLysAspTyrAlaAlaAlaIleArgAspTrpAlaValGlnAsnPro 300
901 AATGCCGCAAGGCTAGAGCGCTCAGCAATATCTTACCGAGTAT 950
901 |||||
301 AsnAlaIleGlnIleGlnIleAlaValSerAsnIlePheMetAlaAla 317
951 CCCGCTCAAGGATTTGAGCTGTTGGGGAATATGCGCTTGGCGGCA 1000
951 |||||
317 eProIleLysGlnIleGlnIleValAlaArgGlnIleGlnIleGln 334
1001 TCAGGCGATCTGTCAAGCGGTGCGAGATGGGAGATGCGATTCGCG 1050
1001 |||||
334 IeThrAlaHisProIleLysArgSerGlnMetGlnIleAlaIleLeuPro 350
1051 AAAGGGAATTCGCGCTCAGCAGCAATTTTGGCGATGCGGATACGCCAA 1100
1051 |||||
351 LysGlnLysSerAlaValSerAspAsnPheAlaAspAlaIleTyrAla 367
1101 ATACCGCTCCCTTACCATTCGCCGAATATCCGTTCAAACTTGCAGCAG 1150

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367 slyrProSerProTyrHisSerArgAsnLeuArgSerAsnLeuGlnA 384
1151 GTTACGGCAAGAAACATCACCTCTCACCCTGCCCGCTCAACGCA 1200
384 rgyrGlyLysGlnAsnIleThrSerSerThrValProProSerAsnGly 400
1201 AAGAGTGTGAAGTGGCAAAACAGCCAGACAGCAAGTCCGCTT 1250
401 LysAsnValLysLeuAlaAspGlnArgHisProLysThrGlyValProPh 417
1251 TGACGGTAAAGGGTTCCGAAATTTGAAAAAGCATAAATACGATAGA 1300
417 eaSPGLyLysGlyPheProAsnPhGlyLysHisValLysTyrAspThrL 434
1301 GAATTAATACCGCTGTCACCAAGTGAAT.....CCTAAGAT 1338
434 LysLeuAsp.....IleGlnGluLeuSerGlyGlyLysLeuProLysAla 448
1339 GAACCCGCTTTAACTTAAGGTTCTGTGCGATCGGCTCATTTGGTC 1388
449 LysProValPheAspAlaLys.....ProArgTyrPgl 459
1389 TATAACTGCCAGATTCATATACGCAAAATACCAAGCAGAGTAAATCA 1438
459 CValAspArgLysLeuAsnLysLeuThrThrArgGluGlnValGlyLys 475
1439 GATATATCCCACTAAATATTAATCTCTCTCAGCACCGCTACCAAAAG 1488
476 AsnVal..... 477
1489 CCTAATAATGATATTGATTTGGATAATTGGTAAATGAGCTAAAGTCC 1538
477 ..... 477
1539 ATCAGACACTAAAGCTCAAGATTTGATGGATGTTCAATTTCTTAAA 1588
478 ..GlnGluIleArgAsnGlyAsnIleAsnSerAsnPheSerGlnHisAla 493
1589 CAGGAAGAGAGCACTGTGATGGCTA 1615
494 GlnLeuGluArgGluIleAsnLysLeu 502

seq_name: /SIDS1/9cgcdata/geneseq/geneseq-emb1/AA1999.DAT:AAV38730
seq_documentation_block:
ID AAV38730 standard; Protein: 628 AA.
XX
AC AAV38730;
XX
DT 08-OCT-1999 (first entry)
XX
DE Neisseria gonorrhoeae antigenic protein encoded by ORF46.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
treatment; Neisseria infection; meningitis; septicemia; gonorrhea.
XX
OS Neisseria gonorrhoeae.
XX
PN WO9924578-A2.
XX
PD 20-MAY-1999.
XX
PF 09-OCT-1998; 98MO-IB01665.
XX
XX 01-SEP-1998; 98GB-0019016.
XX 06-NOV-1997; 97GB-0023516.
XX 14-NOV-1997; 97GB-0024190.
XX 18-NOV-1997; 97GB-0024386.
XX 27-NOV-1997; 97GB-0025158.
XX 10-DEC-1997; 97GB-0026147.
XX 14-JAN-1998; 98GB-0000759.
XX

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PA (CHIR-) CHIRON SPA.
XX
PI Grandi G, Masignani V, Pizza M, Rappuoli R, Scarlato V;
XX
DR WPI; 1999-327407/27.
XX
XX N-PSDB; AA212173.
XX
XX Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
PT diagnosis, treatment and prevention of infection
XX
PS Claim 4; Page 275; 524pp; English.
XX
XX Amino acid sequences AAV38499-Y38944 represent Neisseria meningitidis
CC and N. gonorrhoeae antigenic proteins. They are encoded by open
CC reading frames (ORFs) AA211972-212358. The antigenic proteins,
CC their fragments, their nucleic acids and antibodies are used for
CC diagnosis, prevention (as vaccines) or treatment of Neisseria
CC infections, such as meningitis, septicemia and gonorrhea. Both
CC organisms are closely related. Fragments of the nucleic acids
CC are useful as hybridisation probes and antisense reagents.
XX
SQ Sequence 628 AA.

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alignment_scores:
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    Ratio: 4.597          Gaps: 8
Percent Similarity: 85.536 Percent Identity: 77.679

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Align seg 1/1 to: AAV38730 from: 1 to: 628

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1 TTGGCATTTCCCGCAAAATATCCCTTATTTCTGTCACTAGTGGT 50
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51 CCTGCCGATGCATGCACAGCCTCAGATTTGGCAAGATCTTTTACC 100
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17 sleuProMetHisAlaHisAlaSerAspLeuAlaAsnAspProIleAla 34
101 GGCAGGTTCTGCAGCGTCAGATTTGAAACCCGAGCGGAATATACACCTA 150
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34 rGlnValIleuAspArgGlnHisPheGluProAspGlyLysIleu 50
151 TTGGCAGCAGGAGGGAACCTTCCGAGCGCAGCGGTCAATTCGATTGG 200
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51 PheGlySerArgGlyLysLeuAla**ArgAsnGlyHisIleGlyLeuG 67
201 AAACATACAAAGCCATCAGTTGGGCAACCTTTCATCCAGCGGCGCA 250
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67 yAsnIleGlnSerHisGlnLeuGlyHisLeuMetIleGlnAlaAlaVal 84
251 TTAAAGGAATATCGGCTACATTTGCCGCTTTCCGATCAGCGGCGCA 300
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84 alGlnGlyAsnIleGlyTyrIleValArgPheSerAspHisGlyHisLys 100
301 GTCCATTTCCCTTGCACAAACCATGCTTCACATTCGATTCGATGAGC 350
|||||
101 PheHisSerProPheAspAsnHisAlaSerHisSerAspSerAspGln 117
351 CGGTAGTCCGCTTACGAGATTCAGCTTTACCGCATCTTGGGAGCAT 400
|||||
117 agLysSerProValAspLysPheSerLeuTyrArgIleHisTyrAspGlyT 134
401 ACGAACACATCCCGCGAGGCTATGACGGGCGCACAGGCGCGGCTT 450
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134 yrGlnHisHisProAlaAspGlyTyrAspLysProGlnGlyGlyLysTyr 150
451 CCCGCTCCCAAGCGCGGAGGATATATACGATAGCATAAAGGCT 500
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151 ProAlaProLysGlyAlaArgAspIleTyrSerTyrAspIleLysLys 167

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501 TGCCAAATATCGGCTCACTGACCGCAACCGCAGCCGACGCAAC 550
167 LAlaGlnAsnIleArgLeuAsnIleuThrAspAsnArgSerThrGlyGln 184
551 GCGTGTGACCGCTTCCACAAATACCGGTAGTATGCTGACGCAAGAGTA 600
184 rgluAlaAspArgPheHisAsnAlaGlyAlaMetLeuThrGlnIleVal 200
601 GCGGAGGATTCAAAGCCGACCGCATACAGCCCGGACGTCGACGATC 650
201 GlyAspGlyPheLysArgAlaThrArgTyrSerProGluLeuAspArgSe 217
651 GGGCAATGCCCGGAGCTTTACGCGCATGACGATTCAGATTCGCAAAAA 700
217 rglAsnAlaAlaGlnAlaPheAsnGlyThrAlaAspIleValLysAsnI 234
701 TCATCGCGCGCGCAGAGAAATTCGCGCGCAGCGGATCCGTCAGGGT 750
234 lAlleGlyAlaAlaGlyGlnIleValGlyAlaGlyAspAlaValGlnGly 250
751 ATAAGGAGGCTCAACATTCGTGTATGACGCGCTGGGCTGGCTGCTTC 800
251 lIeSerGlnGlySerAsnIleAlaValMetHisGlyLeuGlyLeuSe 267
801 CACGCAAAACAGATGGCGCGCATACGATTTGGCAGATATGCGCCAC 850
267 rThrGluAsnLysMetAlaArgIleAsnAspLeuAlaAspMetAlaGln 284
851 TCMAAGACTATGCCGACGACGATCCGCGCATTCGGCAGCCCAAAACCC 900
284 euLysAspTyrAlaAlaAlaAlaAlaIleArgAspIrrAlaValGlnAsp 300
901 AATGCCGCAAGGATGAAAGCCGTCAGCAATATCTTACGCGCATGAT 950
301 AsnAlaAlaGlnGlyIleGlnAlaValSerAsnIlePheMetAlaAla 317
951 CCGCGTCAAGGATGAGCTGTTCGGGAAAAATACGCTTGGCGGCA 1000
317 eProIleLysGlyIleGlyAlaValAlaArgGlyLysTyrGlyLeuGly 334
1001 TCACGGCAGATCCTGTCAGCGGTGCGAGATGGCGGACGATCGCGG 1050
334 lThrAlaHisProValLysArgSerGlnMetGlyAlaIleAlaLeuPro 350
1051 AAAGGAAATCCGCGCTCACGCAATTTGGCGATGCGCATGCGCAA 1100
351 LysGlyLysSerAlaValSerAspAsnPheAlaAspAlaAlaTyrAla 367
1101 ATACCGTCCCTTACCATTCGGAATATCCGTTCAACTTGGAGCAGC 1150
367 sTyrProSerProTyrHisSerArgAsnIleArgSerAsnLeuGlnGln 384
1151 GTTACGGCAAGAAACATCAGCTCCTCAACCGTGGCGCGTCAAGCA 1200
384 rGlyrGlyLysGlnAsnIleThrSerSerThrValProProSerAsnGly 400
1201 AAGATGTGAACCTGCAACCAAGCCACCGAGACCAAGTCCGCTT 1250
401 LysAsnValLysLeuAlaAspGlnArgHisProLysThrGlyValPro 417
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1301 GAATTAATACCGCTGACCAAGAGAT.....CCTATGAT 1338
434 yLeuAsp.....lIeGlnGlnLeuSerGlyGlyGlyIleProLysAla 448
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449 LysProValPheAspAlaLys.....ProArgTyrPgl 459

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1389 TATTAAGTGCAGATTCATACGCAAAATTTCCAAAGCAGGTAGATCA 1438
459 uValAspArgLysLeuAsn.....LysLeuThrThrArgGlnGlnValG 474
1439 GATATATCCACCTTAAATTAATCTCTCTTCAGCAGCGCTACCAAAAG 1488
474 Lu.....LysAsnValGlnGlnThrArg..... 481
1489 CCTAATATGATATTTGGATTAATTTGGTAAATGACGATAAGCTCC 1538
481 ..... 481
1539 ATCAGAACTAAAGTCAAGATTTGAATGGATGATTCATTTCTTAAA 1588
482 .ArgLysSerGlnSerSerGlnPheLysAlaHisAlaGln..... 494
1589 CAGGAAGAGCACTTGAATGGCTGAGTGAAGATGATGATTAAT 1638
495 .....ArgGln.....TrpGluAsnLysThrGlyLeuAspPheAsn 506
1639 ATATCAATGATGGAAGATTCACACAAA 1668
507 HisPheIleGlyGlyAspIleAsnLysLys 516

seq_name: /SIDS1/gcgdata/geneseq/geneseq-emb1/AA27561
ID_AU27561 standard; Protein; 584 AA.
AC_AU27561;
DE 18-DEC-2001 (first entry)
DE Neisseria meningitidis mature ORF46 protein sequence.
KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
KW Neisserial protein.
OS Neisseria meningitidis.
PN WO200164922-A2.
PD 07-SEP-2001.
PF 28-FEB-2001; 2001WO-IB00452.
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
XX (CHIR-) CHIRON SPA.
PI Arico MB, Comanducci M, Galeotti C, Masignani V, Gulliani MM;
PI Pizza M;
WPI: 2001-582163/65.
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae -
PS Claim 2; Page 25; 11pp; English.
XX The invention relates to methods for the heterologous expression of
XX Neisserial proteins from Neisseria meningitidis and Neisseria
XX gonorrhoeae. At least one domain in the protein is deleted, e.g. the
XX leader peptide, and may be replaced by a domain from a different protein
XX to make a fusion protein, in order to enhance heterologous expression of
XX Neisserial proteins. Also, a region of a protein, such as a poly-glycine
XX stretch, can be mutated to enhance expression. The proteins used in the
XX processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
XX AAU27553-AAU27610 represent Neisserial proteins and peptide regions of
XX proteins of the invention.
SQ Sequence 584 AA.

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alignment_scores:

Quality: 2110.00 Length: 468
 Ratio: 4.806 Gaps: 4
 Percent Similarity: 93.803 Percent Identity: 86.111

alignment_block:

US-09-303-518D-465 x AAU27561 ..

Align seg 1/1 to: AAU27561 from: 1 to: 584

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1 SeraspLeuAlaAsnAspSerPheIleArgGlnValLeuAspArgGlnI 17
123 TTTGGAACCCGACGGGAATACACCTATTCCGACGAGGGGGAACCTTG 172
|||||
17 SpheGlnProAspGlyLysTyrHisLeuPheGlySerArgGlyLeu 34
173 CCGAGCGCAGCGGTATATCGATTTGGAAACATACAAAGCCATCAGTTG 222
|||||
34 IagLysSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 50
223 GGCAACCTGTTCAATCCAGCAGCGCGCATTAAGAAATATCGGCTACAT 272
|||||
51 GlysAsnLeuMetIleGlnGlnAlaIleLysGlyAsnIleGlyTyrI 67
273 TGTCGGCTTTTCCATCCAGCGGCGACGAGTCCATCCCGTCGACAAAC 322
|||||
67 eValAlaArgPheSerAspHisGlyHisGlyValHisSerProPheAsn 84
323 ATGCCCTACATTCGATTCGTATGAAAGCGGCTAGTCCGCTGACGATTC 372
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84 IAlaSerHisSerAspSerAspGlnAlaGlySerProValAspGlyPhe 100
373 AGCCTTTACGCAATCCATTTGGCAGCGATACGAAACCCATCCCGCGGAG 422
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101 SerLeuTyrArgIleHisTyrAspGlyTyrGlnHisHisProAlaAspG 117
423 CTTATGACGGGCGACAGGCGGCGGTATCCGCTCCCAAAGCGCGAGG 472
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117 YTYrAspGlyProGlnGlyGlyTyrProAlaProLysGlyAlaArg 134
473 ATATATACAGCTACGACATAAAGCGGTTGCCAAAATATCCGCTCAAC 522
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134 splIeTyrSerTyrAspIleLysGlyValAlaGlnAsnIleArgLeuAsn 150
523 CTGACGACACCGCAGCAGCGGACAGGCTTGCGACCGTTTCACAA 572
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151 LeuThrAspAsnArgSerThrGlyGlnArgLeuAlaAspArgPheHis 167
573 TACCGTAGTATGCTGACGCAAGAGTAGCGAGGATTCAAACGGCGCA 622
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167 nAlaGlySerMetLeuThrGlnGlyValAlaGlyAspGlyPheLysArgAla 184
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184 hrArgTyrSerProGlnLeuAspArgSerGlyAsnAlaAlaGlnAlaPhe 200
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773 CTGTATATGACGAGGCTTGCGCTTCCACCGAAACAGATGCGCGC 822
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234 IAlaValMetHisGlyLeuGlyLeuSerThrGlnAsnLysMetAlaArg 250
823 ATCAACGATTTGGCAGATATGCGCGCACTCAAAACATATGCGCGACAGC 872

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251 IleAsnAspLeuAlaAspMetAlaGlnLeuLysAspTyrAlaAlaAla 267
873 CATCCGCGATTTGGCAGTCCAAACCCCAATGCCGACAGCAGATAGAG 922
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267 AlIeArgAspTyrAlaValGlnAsnProAsnAlaIleGlnGlyIleG 284
923 CGGTGACCAATATCTTACGCGAGTCATCCCGTCAAAAGGATTTGAGCT 972
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284 IAlaValSerAsnIlePheMetAlaAlaIleProIleLysGlyIleGlyAla 300
973 GTTCGGGGAATATAGCGCTTTGGCGCATCCGACATCCTGTGCAACG 1022
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1023 GTCCCAATGCGCGAGATGCCATTTGCCGAAGGAAATCCGCGTACGC 1072
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317 gSerGlnMetGlyAlaIleAlaLeuProLysGlyLysSerAlaValSer 334
1073 ACAATTTTCCGATGCGGATACGCCCAATATCCGCTTACATTCG 1122
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334 spAsnPheAlaAspAlaIleAlaTyrAlaLysTyrProSerProTyrHisSer 350
1123 CGAAATATCGCTTCAAACTTTGAGCAGCGCTTACGCGAAAGAAACATC 1172
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1173 CTCCCAACGCTGGCGCGCTCAACGAAAGAAATGTGAACCTGCAAC 1222
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367 rSerSerThrValProProSerAsnGlyLysAsnValLysLeuAlaAsp 384
1223 AAGCGCACCCGACAGCAAGATGCCGCTTTGACGCTTAAGGCTTTCCG 1272
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384 IArgHisProLysThrGlyValProPheAspGlyLysGlyPheProAsn 400
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401 PheGlyLysHisValLysTyrAspThrLysLeuAspIleGlnGlyLeu 417
1312 .....GCTGTACCAACAAGTCAATCTATGATGAAACCCGCTTTATC 1354
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417 rGlyGlyGlyIleProLysAlaLysProValSerAspAla.....Lys 432
1355 CTAAAGCTTCTGTGCGATGCGCTCATCTCTGTATATGCGCGAAT 1404
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432 rArg.....TipeGlnValAspArgLysLeu 440
1405 CAATACGCAAAATTTACCAAGCAGGTAGTAATCAGATATATCCACCTAA 1454
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441 .AsnLysLeuThrThrArgGlnValGlnLysAsnValGlnGlnIle 457
1455 AA 1456
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457 rg 457

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seq.name: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAU27582

seq_documentation_block:

ID AAU27582 standard; Protein: 675 AA.

AC AAU27582;

DT 18-DEC-2001 (first entry)

DE Neisseria meningitidis fusion protein delta-G741-ORF46.1.

XX Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;

KW Neisserial protein.

XX Neisseria meningitidis.

OS Synthetic.

XX WO200164922-A2.

seq_documentation_block:

ID AAE10031 standard; Protein; 675 AA.

AC AAE10031;

DT 29-NOV-2001 (first entry)

DE N. meningitidis strain 2996 delta G741-ORF46.1 fusion protein.

Heterologous expression; Neisserial protein; open reading frame; ORF,
 delta G741-ORF46.1 fusion protein.

delta G741-ORF46.1 fusion protein.

OS *Neisseria meningitidis* 2996.

PN WO200164920-A2

PD 07-SEP-2001

PF 28-FEB-2001; 2001WO-IB00420

PR 28-FEB-2000; 2000GB-0004695

XX

PA (CHIR-) CHIRON SPA.

PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani M, et al. 2019

PI Pizza M;

DR WPI; 2001-557776/62

DR N-PSDB; AAD17046.

aa Heterologous expression for the expression of two or more Neisserial
PT proteins in fused state -

PS Claim 18; Page 22; 52pp; English.

XX The present invention relates to a method for simultaneous heterologous expression of two or more Neisserial proteins which are in a fused state. The method is useful for simultaneous heterologous expression of two or more Neisserial proteins. A protein that may be unstable or poorly expressed on its own is assisted by adding a suitable hybrid partner and commercial manufacture is simplified-only one expression and purification need to be employed in order to produce two separately-useful proteins. The present sequence is Neisseria meningitidis (serogroup B, strain 2996) delta G741-ORF46.1 (open reading frame) fusion protein.

SQ	Sequence	675 AA
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alignment_scores:

Quality: 2093.00	Length: 4.10
Ratio: 5.155	Gaps: 0

Ratio:	3.133	Supp:
Percent Identity:	99.024	96.585

Percent Similarity: 99.024 Percent Identity: 99.999

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US-09-303-318D-403 X AAELV001

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 120 GCATTTCGAAACCGACGGGAATATCACACTATTTCGACGACAGGGGGGAAAC 163
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 274 nHisPheGlnProAspGlyIlystYrHisLeuPheGlySerArgGlyIyul 291
 170 TTGGCCGAGCCACAGCGTCATATCGGATTGGGAAAACATACAAAGCCATCAG 215
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 291 euAlaGluIuArgSerGlyHisIleGlyLeuGlyIyIleGlnSerHisGln 307

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320	ACCATGCGTCACATTCGATTCGTATGAAACCGGATAGTCCCGTTGACGGA	369
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|||||
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1170 CACCTCTCAACCGTCCCGCCGTCAACGAAAGATGGAACCTGCGAA 1219
624 eHrSerSerThrValProProSerAsnGlyLysAsnValLysLeuAla 641
1220 ACAAGCGACCGGAGACCAAGTCCGTTGACGGTAAGAGGTTGCGG 1269
641 spGlnArgHisProLysThrGlyValProPheAspGlyLysGlyPhePro 657
1270 AATTTGAAAGAGCTAAATACGATACG 1299
658 AsnPheGluLysHisValLysTyrAspThr 667

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seq_documentation_block:

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ID AAU27575 standard; Protein; 1474 AA.
XX
AC AAU27575;
XX
DT 18-DEC-2001 (first entry)
XX
DE Neisseria meningitidis fusion protein delta-G983-ORF46.1.
XX
KM Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
XX
OS Neisseria meningitidis.
OS Synthetic.
XX
PN WO200164922-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-IB00452.
XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Massignani V, Guilleni MM;
PI Pizsa M;
XX
DR WPI; 2001-582163/65.
DR N-PSDB; AAS43874.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae.
XX
PS Example 15; Page 44; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 933, 961 and 983. Sequences
CC AAU27575-AAU27610 represent Neisserial proteins and peptide regions of
CC proteins of the invention.
XX
SQ Sequence 1474 AA:

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 Ratio: 5.155 Gaps: 0
 Percent Similarity: 99.024 Percent Identity: 96.585

alignment_block:

US-09-303-518D-465 x AAU27575 ..

Align seg 1/1 to: AAU27575 from: 1 to: 1474

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120 GCATTTCGAACCCGAGGGAATACACCTTATCGCAGCAGGAGGAGAC 169
1073 nhIsPheGluProAspGlyLysTyrHisLeuPheGlySerArgGlyLul 1090
170 TTGGCGAGCGAGCGGTCATATCGGATTGGGAAACATACAAAGCCATAG 219
1090 euAlaGluArgSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGln 1106
220 TTGGCGAACCTGTTCATCCAGCAGCGCGCCATTAAAGAAATATCGGTA 269
1107 LeuGlyAsnLeuMetIleGlnGlnAlaAlaIleLysGlyAsnIleGly 1123
270 CATTTGCGCTTTTCGATCAGGCGCAGAGTCCATTCCTCCCTTGACA 319
1123 rIleValArgPheSerAspHisGlyHisGlyValHisSerProPheAsp 1140
320 ACCATGCGCTCATTCGATTCTGATGACAGCCGCTGCTCCGTTGACGGA 369
1140 snHisAlaSerHisSerAspSerAspGlyValAlaGlySerProValAspGly 1156
370 TTCAGCCTTTACCGCATCTTGAGAGGATACGACACCATCCGCGCGA 419
1157 PheSerLeuTyrArgIleHisThrAspArgLysTyrGlnHisHisProAlaAs 1173
420 CGGCTATGACGGGCGACAGGCGCGGCTATCCGCTCCAAAGCGCGA 469
1173 pGlyTyrAspGlyProGlnGlyGlyLysTyrProAlaProLysGlyAla 1190
470 GGGATATATACAGCTACGACATAAAGCGGTCGCAAAATTCGCGCTC 519
1190 rGAspIleTyrSerTyrAspIleLysGlyValAlaGlnAsnIleArgLeu 1206
520 AACCTGACCGACACCGCAGCAGCAGCGCTTGTGACCGCTTTGCA 569
1207 AsnLeuThrAspAsnArgSerThrGlyGlnArgLeuAlaAspArgPheH 1223
570 CAATACCGGTAGTATGCTGACGCAAGGATAGCGCAGCATTTCAACGCG 619
1223 sAsnAlaGlySerMetLeuThrGlnGlyValGlyAspGlyPheLysArg 1240
620 CCACCGGATACAGCCCGAGCTGACAGATCGGCAATGCGCGGAGAGT 669
1240 lAThrArgTyrSerProGlnLeuAspArgSerGlyAsnAlaIleAla 1256
670 TTCAGCGCATGCGCATATGCTCAAAAACATCATCGCGCGCGCAGAGA 719
1257 PheAsnGlyThrAlaAspIleValLysAsnIleIleGlyAlaIleGly 1273
720 AATTTGCGCGCAGCGCATGCGCTGACAGGATATAGGAGGCTCAACA 769
1273 ulleValGlyAlaGlyAspAlaValGlnGlyIleSerGlnGlySerAsn 1290
770 TTGCTGTATGACAGCGCTGGGCTGCTTTCCACCGGAAACAAAGATGGG 819
1290 leAlaValMetHisGlyLeuGlyLeuLeuSerThrGluAsnLysMetAla 1306
820 CGCATCAACGATTTGGCAGATATGCGCGCAGCTCAAGACTATGCGCCAGC 869
1307 ArgIleAsnAspLeuAlaAspMetAlaGlnLeuLysAspTyrAlaAla 1323
870 AGCCATCCGCGATTGGCGACGTCCAAAACCCCAATGCGCGCAGAGCATG 919
1323 aAlaIleArgAspThrAlaValGlnAsnProAsnAlaIleGlnGlyIleG 1340

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920 AAGCGTCAGCAATATCTTTACGGCAGTCATCCCGTCAAGGATTCGA 969
1340 Iu1aValSerSnlIephemeIaIaIaIleProIleTylSgIylIlegIy 1356
970 GCTGTTCCGGGAAATACGGCTTGGGGCGCATCCAGCACATCTGTCAA 1019
1357 AlalValIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1373
1020 GCGGTGCGAGATGGGAGATGCGATTCGCGAAAGGAAATCCCGCTCA 1069
1373 SAtgSerGlnMetGlyAlaIaIaIaIaIaIaIaIaIaIaIaIaIa 1390
1070 GCGACAAATTTGGCGGATGCGGATACGCAATACCGGCTTACCAT 1119
1390 eRaSpaSnIleAraIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1406
1120 TCCGAAATTCGCTTCAAACTTGGAGCAGCGTTACGCGAAAGAAACAT 1169
1407 SerIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1423
1170 CACCTCTCAACCGTCCCGCTCAACGAAAGATGGAACCTGCA 1219
1423 eThSerSerThIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1440
1220 ACAAGCGCAACCGGAGCAAGTGGCTTTCGCGTAAAGGTTTCG 1269
1440 SpGlnAraIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1456
1270 AATTTTGAAAGACGTAATATGATACG 1299
1457 AsnPhaGlnIuIySHIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1466
seq_name: /SIDS1/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAE10022

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seq_documentation_block:
ID AAE10022 standard; Protein; 1474 AA.
AC AAE10022;
XX 29-NOV-2001 (first entry)
DE N. meningitidis strain 2996 delta G983-ORF46.1 fusion protein.
KM Heterologous expression: Neisserial protein; open reading frame; ORF;
  delta G983-ORF46.1 fusion protein.
OS Neisseria meningitidis 2996.
XX WO200164920-A2.
XX 07-SEP-2001.
XX 28-FEB-2001; 2001WO-IB00420.
XX 28-FEB-2000; 2000GB-0004695.
XX 13-NOV-2000; 2000GB-0027675.
XX (CHIR-) CHIRON SPA.
XX Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
PI Pizsa M;
XX WPI: 2001-557776/62.
XX N-PSDB; AAD17039.
XX Heterologous expression for the expression of two or more Neisserial
XX proteins in fused state
XX Claim 18; Page 14-15; 52pp; English.
XX The present invention relates to a method for simultaneous heterologous
XX expression of two or more Neisserial proteins which are in a fused
XX state. The method is useful for simultaneous heterologous expression of

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two or more Neisserial proteins. A protein that may be unstable or poorly expressed on its own is assisted by adding a suitable hybrid partner and commercial manufacture is simplified-only one expression and purification need to be employed in order to produce two separately useful proteins. The present sequence is Neisseria meningitidis (serogroup B, strain 2996) delta G983-ORF46.1 (open reading frame) fusion protein.

Sequence 1474 AA:

alignment_scores: Length: 410
 Quality: 2093.00 Gaps: 0
 Ratio: 5.155
 Percent Similarity: 99.024 Percent Identity: 96.585

alignment_block:
 US-09-303-518D-465 x AAE10022 ..

Align seg 1/1 to: AAE10022 from: 1 to: 1474

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1057 SerSerAspLeuAlaAsnAspSerPheIleArgGlnValLeuAspArgG 1073
120 GCATTTGGAACCCGAGCGGAATACCACTATTCCGACAGGGGGGAGAC 169
1073 nHisPheGlnIuIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1090
170 TTGCGGAGCGCGGTCATATCGGATTTGGAAACATACAAACCATCAG 219
1090 euaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1106
220 TTGGCAACCTGTTTCATCCAGCAGCGCGCTTAAAGAAATTCGGCTA 269
1107 LeuGlnAsnLeuMetIleGlnGlnAlaIaIaIaIaIaIaIaIaIaIa 1123
270 CATTTCCGCTTTCCGATCACGGGACAGAGTCCATTCCTTCGACA 319
1123 rIleValaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1140
320 ACCATGCTCACATTCGATTCGATGAGCGCGGTAGTCCCGTTGACGA 369
1140 snHisAlaSerHisSerAspSerAspGlnaIaIaIaIaIaIaIaIaIa 1156
370 TTCAGCCTTACCGCATTCATGAGGAGATACGAACATCCCGCGCA 419
1157 PheSerLeuIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1173
420 GCGCTATGAGGGGCGACAGGGCGGCGCTATCCGCTCCCAAGGCGGA 469
1173 pGlyIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1190
470 GGGATATATACGCTACGACATTAAGGCGTGGCCAAATATCCGCTC 519
1190 rgaSpIleIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1206
520 AACCTGACGACAAACGACAGCAGCAAGCGCTTTCGACCGTTTCA 569
1207 AsnLeuThrAspAsnArgSerThrGlnaIaIaIaIaIaIaIaIaIa 1223
570 CAATACGGGTATATGCTGACGCAAGAGTAGCGGAGATTCAAACGCG 619
1223 sAsnAlaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1240
620 CCACCGGATACGCGCGAGCTGACAGATCGGCAATCGCGCGAGCT 669
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670 TTCAACGCGACTGAGATATGTCATAAATCATCATCGCGGCGAGAGA 719
1257 PheAsnGlnIuIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIaIa 1273

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720 AATTGTGGCGAGCGGATGCGGTGAGGTATAGCGAAGGCTCAACA 769
1273 uileValGlyAlaGlyAspAlaValGlnGlyLeuSerGlnGlySerAsnI 1290
770 TTGCTGTATGCGAGCGCTTGCTGCTTCCACCGAAGAAACAAGATGGCG 819
1290 leAlaValMetHisGlyLeuGlyLeuLeuSerThrGlnAsnGlyMetAla 1306
820 CGCATCAGCATTTGGCAGATATGGCGCACTCAAGAACTATGCCGCGAGC 869
1307 ArgIleAsnAspLeuAlaAspMetAlaGlnLeuGlyAspTyrAlaAlaI 1323
870 AGCCATCCGCGATTGGCGAGTCACAAACCCCAATGCGCGCAAGCGCATAG 919
1323 aAlaIleArgAspTyrAlaValGlnAsnProAsnAlaIleGlnGlyLeuG 1340
920 AAGCGGTGAGCAATATCTTTACGCGACTCATCCCGTCAAGAGGATGGA 969
1340 luAlaValSerAsnIlePheMetIleAlaIleProIleGlyLeuGly 1356
970 GCTGTGGGGAATATACGGCTTGCGGCGCATGACGCGACATCTCTGCA 1019
1357 AlAlaValArgGlyTyrGlyLeuGlyGlyIleThrAlaHisProIleGly 1373
1020 GCGGTCCGAGATGGCGAGATGCCATTGCCGAAGGGAATCGCGCGTCA 1069
1373 sArgSerGlnMetClyAlaIleAlaLeuProGlyGlyLysSerAlaValS 1390
1070 GCGCAATTTTGGCGATGGCGCATAGCCCAATACCGCTCCCTTACCAT 1119
1390 eArgspAsnPheAlaAspAlaAlaTyrAlaLysTyrProSerProTyrHis 1406
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1407 SerArgAsnIleArgSerAsnLeuGlnArgTyrGlyLysGlnAsnI 1423
1170 CACCTCTCAACGCGTCCGCGCTCAAGCGAAGAAATGTGAATGCGCA 1219
1423 eThrSerSerThrValProProSerAsnGlyLysAsnValLysLeuAla 1440
1220 ACNAAAGCCAGCCGGAAGACAAAGTCCGTTTGAGCGTAAAGGGTTCCG 1269
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1270 AATTTTGAAGAAAGACGTAAATACGATACG 1299
1457 AsnPheGlnLysHisValLysTyrAspThr 1466
seq_name: /SDSI/gcgdata/geneseq/geneseq-emb1/AA2001.DKF:AAU27597
seq_documentation_block:
ID AAU27597 standard; Protein: 672 AA.
AC AAU27597;
XX
XX 18-DEC-2001 (first entry)
DE Neisseria meningitidis fusion protein ORF46.1-741.
XX
XX Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
KM Neisseria protein.
XX
OS Neisseria meningitidis.
XX
XX Synthetic.
XX
XX WO200164922-A2.
XX
XX 07-SEP-2001.
XX
XX 28-FEB-2001; 2001WO-IB00452.
XX
XX 28-FEB-2000; 2000GB-0004695.
XX
XX 13-NOV-2000; 2000GB-0027675.

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XX
PA (CHIR-) CHIRON SPA.
XX
XX Arico MB, Comanducci M, Galeotti C, Masignani V, Guillani MM;
PI Pizzo M;
XX
XX WPI: 2001-582163/65.
DR N-PSDB: AAS43894.
XX
XX Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae -
XX
XX Example 23; page 64; 119pp; English.
XX
XX The invention relates to methods for the heterologous expression of
CC Neisseria proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisseria proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC AAU27553-AAU27610 represent Neisseria proteins and peptide regions of
CC proteins of the invention.
XX
SQ Sequence 672 AA;

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alignment_scores:
    quality: 2092.00      Length: 409
    Ratio: 5.165          Gaps: 0
    Percent Similarity: 99.022    Percent Identity: 96.822
alignment_block:
US-09-303-518d-465 x AAU27597

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Align seg 1/1 to: AAU27597 from: 1 to: 672

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18 sPheGlnProAspGlyLysTyrHisLeuPheGlySerArgGlyGlnLeuA 35
173 CGAGCGCAGCGGTTCATATCGAGTGGGAACATACAAACCTACGTTG 222
35 IagIArgSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 51
223 GCGAACCTGTTTCATCCAGAGCGGCCCATTAAGGAATATCGCTACAT 272
52 GlysAsnLeuMetIleGlnGlnAlaIleIleGlyAsnIleGlyTyrI 68
273 TGTCGCTTTTCGATCAGCGGCGACGAAGTCCATTCGCCCTTGACAA 322
68 eValArgPheSerAspHisGlyHisGlnValHisSerProPheAspAsn 85
323 ATGCTTCACATTCGATTCGATGAAGCGGTAGTCCGTTGACGATGTC 372
85 IsAlaSerHisSerAspSerAspGlnAlaGlySerProValAspGlyP 101
373 AGCCTTACCGCATTCGATTCGATGAGCGATACGAACACATCCCGCGAG 422
102 SerLeuTyrArgIleHisTyrAspGlyTyrGlnHisHisProAlaAsp 118
423 CTATGACGGGCGACAGGCGCGCTATCCGCTCCCAAGCGCGAGG 472
118 yTyrAspGlyProGlnGlyGlyTyrProAlaProLysGlyAlaArg 135
473 ATATATACAGCTAGACATAAAGCGCTTGCCCAAAATATCCGCTCAAC 522
135 sPleIleTyrSerTyrAspIleLysGlyValAlaGlnAsnIleArgLeuAsn 151

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523 CTGACCGACAACCGGACGACCGAAGCGCTTGTCCAGCGCTTCCACA 572
 152 LeuThrAspAsnArgSerThrGlyGlnArgLeuAlaAspArgPheHisAs 168
 573 TACCGGTAGTATGCTGACGCAAGAGTAGGCGAGCATTCACAACGCGCA 622
 168 nAlaGlySerMetLeuThrGlnGlyValGlyAspGlyPheLeuArgLar 185
 623 CCCGATACAGCCCGAGCTGGACAGATCGGCAATGCCCGCAAGCTTTC 672
 185 hArgTyrSerProGlnLeuAspArgSerGlyAsnAlaAlaGlnAlaPhe 201
 673 AACGCGACATGCGATATGCTCAAAACATCATCGGCGGCGAGAGAAT 722
 202 AsnGlyThrAlaAspLeuAlaGlyAsnIleIleGlyAlaAlaGlyGlnI 218
 723 TGTGCGCGAGCGAGATCGGCTGAGGATATAGCGAGGCTCAACATTTG 772
 218 eValGlyAlaGlyAspAlaValGlnGlyLeuSerGlnGlySerAsnIleA 235
 773 CTGTTATGACGCGCTTGGCTTGTCTTCCAGCAAAACAGATGCGCGGC 822
 235 lValAlaMetHisGlyLeuGlyLeuLeuSerThrGlnAsnIleMetAlaArg 251
 823 ATCAAGCATTTGGCAGATATGGCGCAACTCAAAAGACTATGCCGACAGC 872
 252 IleAsnIlePheLeuAlaAspMetAlaGlnLeuLysAspTyrAlaAlaAla 268
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 302 ValAlaGlyLysTyrGlyLeuGlyIleThrAlaHisProIleLysAsr 318
 1023 GTCCGAGATGGCGAGATCGCATTCGCGAAGGGAATCCGCGTCAGCG 1072
 318 gSerGlnMetGlyAlaIleAlaLeuProLysGlyLysSerAlaValSerA 335
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 352 ArgAsnIleArgSerAsnLeuGlnArgTyrGlyLysGlnAlaIleTh 368
 1173 CTCCTTAACCGTCCGCGCTCAACGAAAGAAAGATGTGAACCTGGCAACA 1222
 368 rSerSerThrValProProSerAsnGlyLysAsnValLysLeuAlaAsp 385
 1223 AACGCCACCGAAGACCAAGTCCGTTGAGCGTAAGGGTTCCGAT 1272
 385 lAsnArgHisProLysThrGlyValProPheAspGlyLysGlyPheProAsn 401
 1273 TTTGAAAAGAGCTAAATACGATACG 1299
 402 PheGlnLysHisValLysTyrAspThr 410

seq_name: /std1/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAE10032
 seq_documentation_block:
 ID AAE10032 standard; Protein: 672 AA.
 AC AAE10032;
 DT 29-NOV-2001 (first entry)

XX N. meningitidis strain 2996 ORF46.1-741 fusion protein.
 DE Heterologous expression; Neisserial protein; open reading frame; ORF;
 KW ORF46.1-741 fusion protein.
 OS Neisseria meningitidis 2996.
 XX WO200164920-A2.
 XX 07-SEP-2001.
 XX 28-FEB-2001; 2001WO-1B00420.
 XX 28-FEB-2000; 2000GB-0004695.
 XX 13-NOV-2000; 2000GB-002675.
 XX (CHIR-) CHIRON SPA.
 XX Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
 PI Pizza M;
 XX WPL: 2001-557776/62.
 DR N-PSDB; AADI7047.
 XX Heterologous expression for the expression of two or more Neisserial
 PT proteins in fused state
 PS Claim 18; Page 25; 52pp; English.

XX The present invention relates to a method for simultaneous heterologous
 CC expression of two or more Neisserial proteins which are in a fused
 CC state. The method is useful for simultaneous heterologous expression of
 CC two or more Neisserial proteins. A protein that may be unstable or
 CC poorly expressed on its own is assisted by adding a suitable hybrid
 CC partner and commercial manufacture is simplified only one expression and
 CC purification need to be employed in order to produce two separately-
 CC useful proteins. The present sequence is Neisseria meningitidis
 CC (serogroup B, strain 2996) ORF46.1 (open reading frame)-741 fusion
 CC protein.
 CC
 SQ Sequence 672 AA;

alignment_scores:
 Quality: 2092.00 Length: 409
 Ratio: 5.165 Gaps: 0
 Percent Similarity: 99.022 Percent Identity: 96.822

Alignment block:
 US-09-303-518D-465 x AAE10032 ..
 Align seg 1/1 to: AAE10032 from: 1 to: 672

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 1173 TCGATTTGGCAACGATTTTATCCGCGAGGTTCTCCAGCGTCAACA 1222
 2 SerAspLeuAlaAsnAspSerPheIleArgGlnValLeuAspArgGlnH 18
 123 TTTGCAACCCGAGCGGAATATACCACTTATCGGCGAGGCGGAACCTTG 172
 1173 TTTGCAACCCGAGCGGAATATACCACTTATCGGCGAGGCGGAACCTTG 1272
 18 sPheGlnProAspGlyLysTyrHisLeuPheGlySerArgGlyGlnLeuA 35
 173 CCGAGGCGAGCGGCTCATTCGATTTGGCAACATCAAAAGCCATCAGTTG 222
 1173 CCGAGGCGAGCGGCTCATTCGATTTGGCAACATCAAAAGCCATCAGTTG 1222
 35 lAsnArgSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 51
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 1173 GGCACCTGTTTCATCCAGCAGCGGCGCATTTAAAGAAATATCGGCTACAT 1272
 52 GlyAsnLeuMetIleGlnGlnAlaAlaIleLysGlyAsnIleGlyTyrI 68
 273 TGTCCGCTTTTCGATCAGCGGCGAGAGTCCATTCCTCCCTTCGACAAC 322
 1173 TGTCCGCTTTTCGATCAGCGGCGAGAGTCCATTCCTCCCTTCGACAAC 1272
 68 eValArgPheSerAspHisGlyHisGlnValHisSerProPheAspAsnH 85

2 SerAspLeuAlaAsnAspSerPheIleArgIValLeuAspArgIlnH1 18
 123 TTTTCGAACCCGCGGGAATACACACTTATCGGACGAGGCGGAGACTTG 172
 18 sPheGluProAspGlyLysTyrHisLeuPheGlySerArgIlyLLeuA 35
 173 CCGAGCGCAGCGGTATCGGATTTGGAAACATCAAAAGCCATCAGTTC 222
 35 lAgIuArgSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 51
 223 GCGAACCTTTATCGACAGCGCGCCATTAAGGAATATCGGTTACAT 272
 52 GlysLeuMetIleGlnIleAlaIleLysGlyAsnIleGlyTyrIle 68
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 373 AGCCTTTACCGCATTCATGGGCGGATAGCAACACATCCGCGGACG 422
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 135 spIleTyrSerTyrAspIleLysGlyValAlaGlnAsnIleHisGlyLeuAsn 151
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 573 TACCGGTAGTATGCTGACGCAAGAGTAGCGGACGATTAACGCGGCCA 622
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 673 AACGCGCATCGATATCGTCAAAACATCATCGCGCGCGCAGAGCAAT 722
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 723 TGTGCGCGCAGCGCATGCCGTGCAAGGTATTAAGGAGGCTCAAACTTG 772
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 268 AlleArgAspTyrPheAlaValGlnAsnProAsnAlaIleGlnGlyIleGlnA 285
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 302 ValArgGlyLysTyrGlyLeuGlyLysIleThrAlaHisProIleLysArg 318

1023 GTCGAGATGGGCGAGATCGCATTCGCGAAAGGGAATCCGCGCTCAGCG 1072
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 1173 CTCTTCACCCGTCGCGCGCTCAACGGAAGAGTGAACACTGCCAACA 1222
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 AC AAU27603;
 XX
 DT 18-DEC-2001 (first entry)
 DE Neisseria meningitidis fusion protein 961c-ORF46.1.
 KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
 KM Neisserial protein.
 OS Neisseria meningitidis.
 PN WO200164922-A2.
 PD 07-SEP-2001.
 PE 28-FEB-2001; 2001WO-IB00452.
 PR 28-FEB-2000; 2000GB-0004695-
 PR 13-NOV-2000; 2000GB-0027675.
 (CHIR-) CHIRON SPA.
 PI Arico MB, Comanducci M, Galeotti C, Masignani V, Gulliani MM;
 PI Pizsa M;
 XX WPI: 2001-582163/65.
 DR N-PSDB: AAS43900.
 PT Producing heterologous proteins from Neisseria meningitidis and N.
 PT gonorrhoeae -
 PS Example 23; Page 70-71; 119pp; English.
 CC The invention relates to methods for the heterologous expression of
 CC Neisserial proteins from Neisseria meningitidis and Neisseria
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
 CC leader peptide, and may be replaced by a domain from a different protein
 CC to make a fusion protein, in order to enhance heterologous expression of
 CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
 CC stretch, can be mutated to enhance expression. The proteins used in the
 CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
 CC AAU27553-AAU27610 represent Neisserial proteins and peptide regions of

CC proteins of the invention.
 XX
 SQ Sequence 751 AA;

alignment_scores:

Quality: 2092.00 Length: 409
 Ratio: 5.165 Gaps: 0
 Percent Similarity: 99.022 Percent Identity: 96.822

alignment_block:

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Align seg 1/1 to: AAU27603 from: 1 to: 751

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AC AAE10034;
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DT 29-NOV-2001 (first entry)
XX
DE N. meningitidis strain 2996 ORF46.1-961c fusion protein.
XX
KW Heterologous expression; Neisserial protein; open reading frame; ORF;
XX ORF46.1-961c fusion protein.
XX
OS Neisseria meningitidis 2996.
XX
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XX
PD 07-SEP-2001.
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PE 28-FEB-2001; 2001WO-1B00420.
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PR 28-FEB-2000; 2000GB-0004695.
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XX Pizze M;
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DR WPI; 2001-557776/62.

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DR N-PSDB: AAD17049.

XX Heterologous expression for the expression of two or more Neisserial
PT proteins in fused state
XX

PS Claim 18; Page 26; 52pp; English.

XX The present invention relates to a method for simultaneous heterologous
CC expression of two or more Neisserial proteins which are in a fused
CC state. The method is useful for simultaneous heterologous expression of
CC two or more Neisserial proteins. A protein that may be unstable or
CC poorly expressed on its own is assisted by adding a suitable hybrid
CC partner and commercial manufacture is simplified-only one expression and
CC purification need to be employed in order to produce two separately-
CC useful proteins. The present sequence is Neisseria meningitidis
CC (serogroup B, strain 2996) ORF46.1 (open reading frame)-961c fusion
CC protein.

SQ Sequence 751 AA;

alignment_scores: Quality: 2092.00 Length: 409.
 Ratio: 5.165 Gaps: 0
Percent Similarity: 99.022 Percent Identity: 96.822

alignment_block:
us-09-303-518d-465 x AAE10034 ..

Align seg 1/1 to: AAE10034 from: 1 to: 751

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173 CCGAGCGCAGCGGTTCATTCGATTGGGAAACATACAAACCATCAGTTG 222
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223 GGCACACTGTTTCATCCGAGCGGCGCATTAAGAAATATGCGGTACAT 272
   |||||||
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XX AAE10038;

XX AC 29-NOV-2001 (first entry)

XX DT N. meningitidis strain 2996 961c-ORF46.1 fusion protein.

XX DE Heterologous expression; Neisserial protein; open reading frame; ORF;

XX KW 961c-ORF46.1 fusion protein.

XX OS Neisseria meningitidis 2996.

seq_name: /SID1/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAU27606

seq_documentation_block:

ID AAU27606 standard; Protein; 765 AA.

XX AAU27606;

XX 18-DEC-2001 (first entry)

XX Neisseria meningitidis fusion protein 961cL-ORF46.1.

XX Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;

XX Neisserial protein.

XX Neisseria meningitidis.

XX Synthetic.

XX WO200164922-A2.

XX 07-SEP-2001.

XX 28-FEB-2001; 2001WO-IB00452.

XX 28-FEB-2000; 2000GB-0004695.

XX 13-NOV-2000; 2000GB-0027675.

XX (CHTR-) CHIRON SPA.

XX Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;

XX Pizze M;

XX WPI; 2001-582163/65.

XX N-PSDB: AAS43903.

XX Producing heterologous proteins from Neisseria meningitidis and N.

XX gonorrhoeae -

XX

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540 hArgTyrSerProGlnLeuAspArgSerGlyAsnAlaIleGlnAlaPhe 556

673 AACGGCACTGCAGATATCGTCAAAACATATCGGCGCGCGAGAAAT 722

557 AsnGlyThrAlaAspIleValLysAsnIleIleGlyAlaIleGlyLys 573

723 TGTGCGCGCAGGCGATGCGCTGCAGGATATACGGAAGCTCAACAT 772

573 eValGlyAlaGlyAspAlaValGlnGlyIleSerGlnGlySerAsnIle 590

773 CTGTTATGACAGCGCTGCTGCTCTTCCACCGCAAAACAGATGGCGCG 822

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Ratio: 5.165 Gaps: 0

Percent Similarity: 99.022 Percent Identity: 96.822

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Align seg 1/1 to: AAU27606 from: 1 to: 765

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 DT N. meningitidis strain 2996 961cL-ORF46.1 fusion protein.
 XX Heterologous expression; Neisserial protein; open reading frame; ORF;
 KW 961cL-ORF46.1 fusion protein.
 OS Neisseria meningitidis 2996.
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 PF 28-FEB-2001; 2001MO-1B00420.
 PR 28-FEB-2000; 2000GB-0004695.
 PR 13-NOV-2000; 2000GB-0027675.
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 PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MM;
 PI Pizze M;
 DR WPI: 2001-557776/62.
 DR N-PSDB: AADI7056.
 XX
 PT Heterologous expression for the expression of two or more Neisserial
 PT proteins in fused state -
 XX
 PS Claim 18; Page 32-33; 52pp; English.
 XX

CC The present invention relates to a method for simultaneous heterologous
 CC expression of two or more Neisserial proteins which are in a fused
 CC state. The method is useful for simultaneous heterologous expression of
 CC two or more Neisserial proteins. A protein that may be unstable or
 CC poorly expressed on its own is assisted by adding a suitable hybrid
 CC partner and commercial manufacture is simplified-only one expression and
 CC purification need to be employed in order to produce two separately-
 CC useful proteins. The present sequence is Neisseria meningitidis
 CC (serogroup B, strain 2996) 961cL-ORF46.1 (open reading frame) fusion
 CC protein.
 CC
 XX
 XX
 SO Sequence 765 AA;

alignment_scores:
 Quality: 2092.00
 Ratio: 5.165

Length: 409
 Gaps: 0

Percent Similarity: 99.022 Percent Identity: 96.822

alignment_block:

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PR 13-NOV-2000; 2000GB-0027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Commanducci M, Galeotti C, Masignani V, Giuliani MM;
PI Pizze M;
XX
XX WPI: 2001-582163/65.
XX
XX N-PSDB: AAS43895.
XX
XX Producing heterologous proteins from Neisseria meningitidis and N.
XX
XX gonorrhoeae.
XX
XX Example 23; Page 65; 119pp: English.

```

CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences
CC AAU27553-AAU27610 represent Neisserial proteins and peptide regions of
CC proteins of the invention.

XX
SQ Sequence 806 AA:

alignment_scores:
Quality: 2092.00 Length: 409
Ratio: 5.165 Gaps: 0
Percent Similarity: 99.022 Percent Identity: 96.822

alignment_block:
us-09-303-518d-465 x AAU27598 ..

Align seg 1/1 to: AAU27598 from: 1 to: 806

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18 sPheGlnProAspGlyLysTyrHisLeuPheGlySerArgGlyLysLeuA 35
173 CCGAGCGCAGCGGTATATGCGATTGGGAACATACAAACCCATCAGTTG 222
35 lAgIuArgSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 51
223 GGCACCTGTTTCATCCAGCAGCGGCATTAAGGAATATCGGTCATCAT 272
52 GlyAsnLeuMetIleGlnGlnAlaAlaIleuysGlyAsnIleGlyTril 68
273 TGTCGCGTTTTCGATCAGCGGCGACGAAGTCATTCGCCCTTGACAAAC 322
68 eValArPheSerHisGlyHisGlyValAlaHisSerProPhaAspAsnH 85
323 ATGCCCTACATTCGATTCTGATGAGCCGCGTACCTCCCTTGACGATTC 372
85 lAlaSerHisSerAspSerAspGlnAlaGlySerProValAspGlyPhe 101
373 AGCCTTACCGCATCCATTGGAGGATACGACACCATCCCGCGAGCG 422
102 SerLeuTyrArgIleHisIleIleIleIleIleIleIleIleIleIle 118
423 CTATGACGGGCGACAGGCGCGGTATCCCGTCCCAAGGCGCGAGGG 472
118 yTyrAspGlyProGlnGlyGlyGlyTyrProAlaProLysGlyAlaArgA 135
473 ATATATACAGCTACGACATAAAGCGTGGCCCAATATCCGCTCAAC 522
135 spIleTyrSerTyrAspIleLysGlyValAlaGlnAsnIleArgLeuAsn 151
523 CTGACCGACAAACCGACGACGACGACGACGACGACGACGACGACGAC 572
152 LeuThrAspAsnArgSerThrGlyGlnArgLeuAlaAspArgPheHisAs 168
573 TACCGTAGTATGCTGACGACAGAGTAGGCGACGATTCAAACGCGCA 622
168 nAlaGlySerMetLeuThrGlnGlyValGlyAspGlyPheLysArgAlat 185
623 CCGCATACAGCCCGAGCTGACAGATGCGGCAATGCCCGGGAAGCTTC 672
185 hArgTyrSerProGlnLeuAspArgSerGlyAsnAlaIleGlyAlaPhe 201
673 AACGGCACTGCAAGATTCGTCAAAAAACATCATCGCGCGGCGAGGAAAT 722

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723 TGCGGGCGAGCGATGCCGTCAGGATATTAAGCAGGCTCAACATG 772
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218 eValGlyAlaGlyAspAlaValGInGlyIleSerGInGlySerAsnIleA 235
773 GTGTTATGCACGCTTGGTCTGCTTTCACCGAAACAAATAGTGGCGG 822
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235 lAvalMetHisGlyLeuGlyLeuLeuSerThrGInAsnLysMetAlaArg 251
823 ATCAACGATTTGGCAGATATGCGCACTCAAGAATATGCGCGCAGC 872
|||||
252 lIeAsnAspLeuAlaAspMetAlaGInLeuLysAspTyrAlaAlaAla 268
873 CATCCGCGATTGGCAGTCCAAACCCCAATGCCGCAACAGGCTATAAG 922
|||||
268 alIeArgAspTrpAlaValGInAsnProAsnAlaIaGInGlyIleGluA 285
923 CCGTCAGCAATATCTTTACGGCACTCATCCCGTCAAGGATTTGAGCT 972
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973 GTTCGGGAAATACGGCTTGCGGCGATCAAGGCAATCTCTGCAAGC 1022
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302 ValArgGlyLysTyrGlyLeuGlyGlyIleThrAlaHisProIleLysAr 318
1023 CTCGCAGATGGCGAGATCGCATTCGCCGAAAGGAAATCCGCGTCAGC 1072
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318 gSerGInMetGlyAlaIleAlaLeuProLysGlyLysSerAlaValSerA 335
1073 ACAATTTGGCGATGGCGATACGCCCAATACCCGTCCTTACCATTC 1122
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335 sPanPheAlaAspAlaIaIaIaLysTyrProSerProTyrHisSer 351
1123 CGAAATATCCGTTCAAACTTGAGCAGCGTTAGCGCAAGAAACATCA 1172
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352 ArgAsnIleArgSerAsnLeuGInArgTyrGlyLysGInAsnIleTh 368
1173 CTCCTCAACGCTGCCCGCTCAACAGGAAAGAAATGTGAATGGCAACA 1222
|||||
368 rSerSerThrValProProSerAsnGlyLysAsnValLysLeuAlaAspG 385
1223 AACGCCACCCGAGACCAAGTCCGTTGACGCTTAAGGCTTCGCAAT 1272
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385 lArgHisProLysThrGlyValProPheAspGlyLysGlyPheProAsn 401
1273 TTTGAAAAAGACTAAATACGATACG 1299
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seq_name: /SIDS1/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAU27600
seq_documentation_block:
ID AAU27600 standard; Protein: 806 AA.
XX
AC AAU27600;
XX
DT 18-DEC-2001 (first entry)
XX
DE Neisseria meningitidis fusion protein 961-ORF46.1.
XX
KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
KW Neisserial protein.
XX
OS Neisseria meningitidis.
XX
PN Synthetic.
XX
PN WO200164922-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001MO-IB00452.

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XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-00027675.
XX
PA (CHIR-) CHIRON SPA.
XX
PI Arico MB, Comanducci M, Galeotti C, Masignani V, Giuliani MW,
PI Pizze M;
XX
DR WPI: 2001-582163/65.
DR N-PSDB; AASA4897.
XX
PT Producing heterologous proteins from Neisseria meningitidis and N.
PT gonorrhoeae -
XX
PS Example 23; Page 67; 119pp; English.
XX
CC The invention relates to methods for the heterologous expression of
CC Neisserial proteins from Neisseria meningitidis and Neisseria
CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
CC leader peptide, and may be replaced by a domain from a different protein
CC to make a fusion protein, in order to enhance heterologous expression of
CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
CC stretch, can be mutated to enhance expression. The proteins used in the
CC AAU2553-AAU27610 represent Neisserial proteins and peptide regions of
CC proteins of the invention.
XX
SQ Sequence 806 AA;

alignment_scores:
Quality: 2092.00 Length: 409
Ratio: 5.165 Gaps: 0
Percent Similarity: 99.022 Percent Identity: 96.822

alignment_block:
US-09-303-518D-465 x AAU27600 ..

Align seg 1/1 to: AAU27600 from: 1 to: 806

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390 SerAspLeuAlaAsnAspSerPheIleArgGInValLeuAspArgGInI 406
123 TTTGCAACCGGAGGAAATACCACCTATTCGGCAGCGAGGGGCACTTG 172
406 sPheGInProAspGlyLysTyrHisLeuPheLysSerArgGlyGluLeuA 423
173 CCGAGCGCAGCGGTCATATCGGATTGGGAAACATPACAAAGCCATCAGT 222
423 lArgLysSerGlyHisIleGlyLeuGlyLysIleGInSerHisGInLeu 439
223 GCGAACCTGTTCATCCAGCAGCGCGCCATTAAAGGAAATATCGGCTCAT 272
440 GlyAsnLeuMetIleGInGInAlaIaIaIeLysGlyAsnIleGlyTyrI 456
273 TGTCCGCTTTTCGATCACGGGACGAGGATCCATCCCGCTTCGACACG 322
456 eValArgPheSerAspHisGlyHisGInValHisSerProPheAspAsnH 473
323 ATGCTTCACATTCGATTCGATGAGCGGCTAGTCCGTTGACGAGATTC 372
473 lAlaSerHisSerAspSerAspGInAlaGlySerProValAspGlyPhe 489
373 AGCCTTACCGCATCCATTCGGAGCGGATACGACACCATCCCGCGACG 422
490 SerLeuTyrArgGInHisStrpAspGlyTyrGInHisHisProAlaAspG 506
423 CTATGACGGCGCACAGGCGCGGCTATCCCGCTCCCAAGGCGGACGAG 472
506 yTyrAspPolypProGInGlyGlyTyrProAlaProLysGlyAlaArgA 523

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473 ATATATACAGCTACGACATATAAGCGCTTGCCAAAATATCCGCTCAAC 522
523 spiletyserthyrspllelysglyValaIaGlnAsnIleArgLeuAsn 539
523 CTGACCGACACCGCAGACCGGACACAGCGCTTGCCACCGCTTCCACAA 572
540 LeuThAspAsnArgSerThrgIyGlnArgLeuAlaAspArgPheHisAs 556
573 TACCGGTATATGCTGACGCAAGAGTAGCGGACGAGTCAACAGCGCA 622
556 nAlaGlySerMetLeuThrgInglyValGlyAspGlyPheLysArgAla 573
623 CCCGATACAGCCCGAGCTGACAGATCGGCGATCCCGCGAAGCTTTC 672
573 hrArgySerProGlnLeuAspArgSerGlyAsnAlaIaGlnAlaPhe 589
673 AACGCACTGCAATATCTCAAAAACATCATCGCGCGGCGGAGGAAT 722
590 AsnGlyThrAlaAspIleValIleLysAsnIleIleGlyAlaAlaGly 606
723 TGTGGGCGGCGGATCGCGTACAGGATTAAGCAAGGCTCAACATGTG 772
606 eValGlyAlaGlyAspAlaValGlnGlyIleSerGlnGlySerAsnIle 623
773 CTGTATGCAAGCGCTTGCTGCTTCCACCGAAAACAGTGGCGGCG 822
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823 ATCAGCATTTGGCAGATATGGCGCAACTCAAGACTATGCGCGAGAGC 872
640 IleAsnSpLeuAlaAspMetAlaGlnLeuLysAspTyrAlaAlaAla 656
873 CATCCGATTTGGGCGAGTCCAAAACCCCAATGCCGCGCAGGATGAG 922
656 alleArgAspTyrAlaValGlnAsnProAsnAlaIaGlnGlyIleGlu 673
923 CCGTCAGCAATATCTTACGCGAGTATCCCGCTCAAGGAGTGGAGT 972
673 lAlaSerAsnIlePheMetAlaAlaIleProIleLysGlyIleGlyAla 689
973 GTTGGGGAATAATACGGCTTGCGGCGATCAGGACATCTGTCAGCG 1022
690 ValArgGlyIleGlyIleGlyIleGlyIleThrAlaHisProIleLys 706
1023 GTCCGAGATGGCGAGATCGCATTCGCAAAAGGAAATCCCGCTCAG 1072
706 gSerGlnMetGlyAlaIleAlaLeuProLysGlyLysSerAlaValSer 723
1073 ACAATTTGGCGATCGGCGCATAGCGCAATACCGCTCCCTTACATTC 1122
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1123 CGAATATCGCTCAAACTTGAGACAGCGTACGCAAGAAACATCAC 1172
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1173 CTCCTCAACCGTGGCGCGCTCAAAACGAAAGATGTGAACCTGGCACA 1222
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1223 AACGCGACCGCGAAGCAAGTGGCGTTCAGCGTAAAGGCTTCCGAA 1272
773 lArgHisProLysThrGlyValProPheAspGlyLysGlyPheProAsn 789
1273 TTTGAAAAGACGTAAATAGCATACG 1299
790 PheGlnLysHisValLysTyrAspThr 798
seq_name: /SIDSL/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAE10033
seq_documentation_block:
ID AAE10033 standard; Protein: 806 AA.
XX

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AC AAE10033:
XX 29-NOV-2001 (first entry)
DT N. meningitidis strain 2996 ORF46.1-961 fusion protein.
XX DE
XX DE Heterologous expression; Neisserial protein; open reading frame: ORF;
XX KW ORF46.1-961 fusion protein.
XX OS
XX Neisseria meningitidis 2996.
XX PN
XX WO200164920-A2.
XX PD
XX 07-SEP-2001.
XX PF
XX 28-FEB-2001; 2001MO-IB00420.
XX PR
XX 28-FEB-2000; 2000GB-0004695.
XX PR 13-NOV-2000; 2000GB-0027675.
XX PA
XX (CHIR-) CHIRON SPA.
XX PI
XX Arico MB, Comanducci M, Galeotti C, Massignani V, Giuliani MM;
XX PI Pizza M;
XX DR
XX MPI; 2001-55776/62.
XX N-PSDB; AAD17048.
XX PT
XX Heterologous expression for the expression of two or more Neisserial
XX proteins in fused state
XX PS
XX Claim 18; Page 26; 52pp; English.
XX CC
XX The present invention relates to a method for simultaneous heterologous
XX expression of two or more Neisserial proteins which are in a fused
XX state. The method is useful for simultaneous heterologous expression of
XX two or more Neisserial proteins. A protein that may be unstable or
XX poorly expressed on its own is assisted by adding a suitable hybrid
XX CC partner and commercial manufacture is simplified only one expression and
XX purification need to be employed in order to produce two separately-
XX CC useful proteins. The present sequence is Neisseria meningitidis
XX CC (serogroup B, strain 2996) ORF46.1 (open reading frame)-961 fusion
XX CC protein.
XX SO
XX Sequence 806 AA:
XX
XX alignment_scores:
XX Quality: 2092.00 Length: 409
XX Ratio: 5.165 Gaps: 0
XX Percent Similarity: 99.022 Percent Identity: 96.822
XX
XX alignment_block:
XX US-09-303-518D-465 x AAE10033 ..
XX
XX Align seg 1/1 to: AAE10033 from: 1 to: 806
XX
XX 73 TCAGATTTGGCAACGATTTCTTATCCGAGCGTTCGACCGTCAACA 122
XX 2 SerAspLeuAlaAsnAspSerPheIleArgGlnValLeuAspArgGlnH 18
XX 123 TTTGCAACCGCGAAGATACCACTTATGCGGACGAGCGGGAACCTG 172
XX 18 spHeGlnProAspGlyLysTyrHisLeuPheGlySerArgGlyGluLeu 35
XX 173 CCGAGCGGCGGCGTATCGATTCGATTGGGAAACATCAAGCCATCAGTG 222
XX 35 lArgLysSerGlyHisIleGlyLeuGlyLysIleGlnSerHisGlnLeu 51
XX 223 GCGACCTTTCATCCAGCAGCGCGCATTAAGGAATATCGCTCAT 272
XX 52 GlyAsnLeuMetCileGlnIleAlaIleLysGlyAsnIleGlyTyrII 68
XX

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85 IAlaIserHisSerAspSerAspGlyAlaGlySerProValAspGlyPhe 101
    |||
373 AGCCTTTACCGCATCCATTTGGGAGCGATAGCAACACCTCCCGCGACGG 422
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102 SerLeuTyrArgIleHisTyrAspGlyTyrGlnHisHisProAlaAspGly 118
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423 CTAATGACGGGCGACAGCGCGGCGCTATCCGCTCCGAAAGCGCGAGG 472
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118 yTyrAspGlyProGlnGlyGlyTyrProAlaProGlyGlyAlaArgA 135
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473 ATATATACAGCTACGACATAAAGCGCTTGCCAAATATCCGCTTAAC 522
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135 spIleTyrSerTyrAspIleGlyValAlaGlnAsnIleArgLeuAsn 151
    |||
523 CTGACCGCAACCGGACCGGACAAACGGCTTGCCAGCTTTCACAA 572
    |||
152 LeuThrAspAsnArgSerThrGlyGlnArgLeuAlaAspArgPheHisAs 168
    |||
573 TACCGGTAGTATGCTGACCGCAAGGAGTAGCGGAGGATTCAACGGCGCA 622
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168 nAlaGlySerMetLeuThrGlnGlyValGlyAspGlyPheLysArgAla 185
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623 CCCGATACAGCCCGGACGCTGGACAGATCGGGCAATGCGCGCAAGCTTC 672
    |||
185 hrArgTyrSerProGlnLeuAspArgSerGlyAsnAlaAlaGlyAlaPhe 201
    |||
673 AAGGCGACTGACATATCGTCAAAACATATCGCGCGGACGACGAAT 722
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202 AsnGlyThrAlaAspIleValLysAsnIleIleGlyAlaAlaGlyIle 218
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723 TGTGCGCGCAGCGGATCGCTGACGGGTATACGGAAGCTCAACATG 772
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218 eValGlyAlaGlyAspAlaValAlaGlnGlyIleSerGlnGlySerAsnIleA 235
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773 CTGTTATGACAGCGCTTGCTGCTCTTCACGCAAAACAGATGGCGGCG 822
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235 IValMetHisGlyLeuGlyLeuLeuSerThrGlnAsnIleMetAlaArg 251
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823 ATCAACGATTTGGCAGATAGCGGCACTCAAAAGACTATGCCGCGACG 872
    |||
252 IleAsnAspLeuAlaAspMetAlaGlnLeuLysAspTyrAlaAlaAla 268
    |||
873 CATCCGCGATTTGGGAGTCCAAACCCCAATGCCGACAAAGCATAGAAG 922
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268 AlIeATGAspTyrPAlaValAlaGlnAsnProAsnAlaAlaGlnGlyIleGluA 285
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1073 ACAATTTTCCGATGCGGATAGCGCAAAATCCGCTCCCTTACCAATCC 1122
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335 sPAsnProPheAlaAspAlaIleTyrAlaLysTyrProSerProTyrHisSer 351
    |||
1123 CGAAATATCCGTTCAAACTTGAGCAGCGGTTAGCGCAAAAGAAACATCAG 1172
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352 ArgAsnIleArgSerAsnLeuGlnAlaArgTyrGlyLysGlnAsnIleThr 368
    |||
1173 CTCCTCAACCGTGGCGCGCTCAAAAGGAAAGATGTGAACGTGCAACA 1222

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seq_documentation_block:
ID AAE10035 standard; Protein; 806 AA.
XX
AC AAE10035;
XX
DE 29-NOV-2001 (first entry)
XX
DE N. meningitidis strain 2996 961-ORF46.1 fusion protein.
XX
KW Heterologous expression; Neisserial protein; open reading frame; ORF;
KW 961-ORF46.1 fusion protein.
XX
OS Neisseria meningitidis 2996.
XX
PN WO200164920-A2.
XX
PD 07-SEP-2001.
XX
PF 28-FEB-2001; 2001WO-IB00420.
XX
PR 28-FEB-2000; 2000GB-0004695.
PR 13-NOV-2000; 2000GB-002675.
XX
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PI Arico MB, Comanducci M, Galeotti C, Maignani V, Giuliani MM;
PI Pizsa M;
XX
DR WPI: 2001-557776/62.
DR N-PSDB; AAD17050.
XX
PT Heterologous expression for the expression of two or more Neisserial
PS proteins in fused state
XX
PS Claim 18; Page 27; 52pp; English.
XX
XX

```

The present invention relates to a method for simultaneous heterologous expression of two or more Neisserial proteins which are in a fused state. The method is useful for simultaneous heterologous expression of two or more Neisserial proteins. A protein that may be unstable or poorly expressed on its own is assisted by adding a suitable hybrid partner and commercial manufacture is simplified-only one expression and purification need to be employed in order to produce two separately useful proteins. The present sequence is *Neisseria meningitidis* (serogroup B, strain 2996) 961-ORF46.1 (open reading frame) fusion protein.

Alignment_scores:

Quality:	2092.00	Length:	409
Ratio:	5.165	Gaps:	0
Percent Similarity:	99.022	Percent Identity:	96.822

Alignment_block:

US-09-303-518D-465 x AAE10035 ..

Align seg 1/1 to: AAE10035 from: 1 to: 806

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|||||
390 SerAspLeuAlaAsnAspSerPheIleArgIleValIleuAspArgIleHi 406
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|||||
406 spHeGluProAspGlyIleTyHisIleuPheGlySerArgIleIleuA 423
173 CCGAGCCGACGGGTGATTCGATTGGGAAACATCAAAAGCATCAGTTG 222
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440 GlyAsnIleuMetIleGlnIleAlaIleIleGlyAsnIleGlyTyrI 456
273 TGTCGGCTTTTCGATCAGCGGACGAGAGTCCATTCCTCCCTTCGAC 322
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573 hrArgTySerProGlnIleuAspArgSerGlyAsnAlaIleGluAlaPhe 589
673 AAGGACGTCGATATGCTCAAAACATCATCGCGCGGACGAGAAAT 722
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590 AsnGlyThrAlaAspIleValIleAsnIleIleGlyAlaIleGlyGluI 606
723 TGTGCGGACGAGCGGATGCGGTGACAGGATTAAGCGAAGGCTCAACAT 772
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606 eValIleGlyAlaGlyAspAlaValIleGlnIleIleSerGlnIleSerAsnIleA 623
773 CTGTATGACGCGGCTGCTGCTGCTTTCACGAAACAGATGGCGCGC 822
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623 IAlaValMetHisIleGlyLeuGlyIleuIleuSerThrGluAsnIleMetAlaArg 639
823 ATCAACGATTGGCAGATATGGGCAACTCAAAAGACTATGCGGACGACG 872
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873 CATCCGCGATTGGGCACTCCAAACCCCAATGCGGACGAGGATGAGG 922
|||||
656 AlIleArgAspTyrAlaValIleAsnProAsnAlaIleGlnIleGlyIleGlu 673
923 CCGTCAGATATCTTACGACGACTATCCCGCTCAAAAGGATTTGAGCT 972
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973 GTTGGGGGAAATACGGCTTGCGGCGCATCAGCGCACATCTCTCAAGCG 1022

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723 spAsnPheAlaAspAlaIleTyAlaIleTyIleProSerProIleTyHisSer 739
1123 CGAAATATCCGTTCAAACTTGAGCAGCGCTTACGCGCAAGAAACATCAC 1172
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773 IAlaGlnHisProIleTyThrGlyValIleProPheAspGlyIleGlyPheProAsn 789
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AC AAV38728;
XX
DE 08-OCT-1999 (first entry)
XX
DE Neisseria meningitidis antigen encoded by a partial ORF46.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW treatment; Neisseria infection; meningitis; septicemia; gonorrhea.
XX
OS Neisseria meningitidis.
XX
PN W09924578-A2.
XX
PD 20-MAY-1999.
XX
PE 09-OCT-1998; 98WO-IB01665.
XX
PR 01-SEP-1998; 98GB-0019016.
XX
PR 06-NOV-1997; 97GB-0023516.
XX
PR 14-NOV-1997; 97GB-0024190.
XX
PR 18-NOV-1997; 97GB-0024386.
XX
PR 27-NOV-1997; 97GB-0025158.
XX
PR 10-DEC-1997; 97GB-0026147.
XX
PR 14-JAN-1998; 98GB-0000759.
XX
XX (CHIR-) CHIRON SPA.
XX
XX Grandi G, Masignani V, Pizza M, Rappuoli R, Scarlato V,
XX
XX WPI: 1999-327407/27.
XX
XX N-PSDB; AM12172.
XX
XX Proteins from Neisseria meningitidis and N. gonorrhoeae useful for
XX
XX diagnosis, treatment and prevention of infection
XX
XX Claim 4; Page 274; 524pp; English.
XX
XX Amino acid sequences AAV38499-Y38944 represent Neisseria meningitidis
XX
XX and N. gonorrhoeae antigenic proteins. They are encoded by open
XX
XX reading frames (ORFs) AM211972-Z12358. The antigenic proteins,
XX
XX their fragments, their nucleic acids and antibodies are used for

```



```

|||||
34 rgluysarlgserSerHisProAlgluylserProIylsProIlnCys 50
606 CGCAGACGATAGAAAGCCGTACGAATCTTTACGGCAGTCAATCCCG 955
51 ArgThArGHisArGSerArGlnIntYrleuYrGlySerHisProH 67
956 TCAAAAGGATGAGCTGTCGGGAAAAATACGCTTGCGGCGCATCAG 1005
67 sglnaIgaSPTrpserCysProGlyIylsIleGlnleuGlyArGHisH 84
1006 GCACATCTGTCAAGCGGTGCGAGATGGCGCGCATGCGTCCCAAG 1055
84 lYhrSerCysArGAlaValAlaAsp**ArgSPArGlyIleCysGluAr 100
1056 GAATCGCGCGTACGACAAATTTTCCGATGGCGCATGCCCAATAC 1105
101 GlnIleArGArGlnArGln**CysArGcysArGleuGlyIylsIle 117
1106 CGTCCCGCTTACCATCCGAAATATCCGTTCAAACTTGAGACAGCGT 1155
117 o...SerleuSerIleProIylsYrProleuYls...leuGlnIlnr 132
1156 GCGCAAAACAAACATCCCTCCACCGTGGCGCGCTCAAGCAAGAA 1205
133 GilylsglnsnIleTrpSerTrpValProIoserHisnIlylsAs 149
1206 TGTGAACCTGGCAACAAACGCCACCGAGACCAAAAGCGCTTGAG 1255
149 nvalIylsleuAlaSPTrGlnArGHisProIylsTrnGlyValPro 166
1256 GTAAAGGCTTCCGAATTTGAAAAAGCTAAATACGATACGAGAAT 1305
166 lYlYsglyPherProAsnPhelIulYshIsvallYstyPhsPrnI 182
1306 AATACCGCTTACCAACAGTGAT.....CCTATAGATGAC 1343
183 Asp.....IleGlnIleuSerGlyGlyIylleProIylsAlaYs 197
1344 CGTCTTATCTTAAGGTTCTGTGCGATGGCTCATCTTGCTATTA 1393
197 ovalPhespaIalys.....ProArGTrpGluVala 208
1394 CTGCCAGAAATCAATACGCAAAATTAACCAAGCAAGTAGAATCA 1443
208 SPArGLYleuAsn.....LysleuTrpTrArGluGlnValGlu... 221
1444 ATCCCACTAAAAATTAATCTCTCTTACGACACCGCTACCAAAAG 1493
222 .....LysAsnValGlnIulYhrArG..... 228
1494 TAAATGATTTTGGATTAATTTGGTAATGATGACTAAAGGTCAT 1543
229 .....Arga 230
1544 GAACATAAGTCAAGAAATTTGAATGGATGTCAATTTCTTAAACA 1593
230 rGserClnserSerGlnPhelYsAlaHIsAlaGln..... 241
1594 AGAGACCAATTTGATGGCTAGTAGCGATGTAAGCATTTAATAT 1643
242 ArgGln.....TrpGlnAsnIylsTrnGlyleuAspPhesHIsPh 255
1644 AATTGATGGAAGATTAACACACAAA 1668
255 eIIeGlyGlyAspIleAsnIyls 263
seq_name: /SIDSL/9cdata/geneseq/genesep-emb1/AA2000.DAT:AAV75498
seq_documentation_block:
ID AAV75498 standard; Protein: 576 AA.
XX
AC AAV75498;

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XX
DT 21-MAR-2000 (first entry)
XX
DE Neisseria gonorrhoeae ORF 730 protein sequence SRQ ID NO:2470.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
XX antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;
XX antibacterial; gene therapy.
XX
OS Neisseria gonorrhoeae.
XX
PN W0957280-A2.
XX
PD 11-NOV-1999.
XX
PF 30-APR-1999; 99WO-US09346.
XX
PR 01-MAY-1998; 98US-0083758.
XX PR 31-JUL-1998; 98US-0094869.
XX PR 02-SEP-1998; 98US-0098994.
XX PR 02-SEP-1998; 98US-0099062.
XX PR 09-OCT-1998; 98US-0103749.
XX PR 09-OCT-1998; 98US-0103794.
XX PR 09-OCT-1998; 98US-0103796.
XX PR 25-FEB-1999; 99US-0121520.
XX
PA (CHIR ) CHIRON CORP.
PA (GENO-) INST GENOMIC RES.
XX
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masiuani V, Mora M,
PI Petersen J, Pizsa M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
PI Tettehn H, Venter JC;
XX
DR WPI: 2000-062150/05.
DR N-PDSB; AA254260.
XX
PT Novel Neisserial polypeptides predicted to be useful antigens for
PT vaccines and diagnostics
XX
PS Claim 2; Page 1181; 1453pp; English.
XX
CC AA253015 to AA254536, AA254577 to AA254615, and AAV74253 to AAV75941
CC represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides
CC and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent
CC PCR primers used in the exemplification of the present invention. The
CC polypeptides, the polynucleotides, antibodies and compositions of
CC the invention can be used as vaccines, as diagnostic reagents, and as
CC immunogenic compositions. The polypeptides can be used in the
CC manufacture of medicaments for treating or preventing infection due to
CC Neisserial bacteria (e.g. meningitis and septicemia), to detect the
CC presence of Neisseria bacteria, or to raise antibodies. They may also
CC be used to screen for agonists or antagonists, which may themselves
CC have use as antibacterial agents. The polynucleotides of the invention
CC may also be used in gene therapy protocols.
XX
SQ Sequence 576 AA:

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alignment_scores: Length: 575
Quality: 758.00
Ratio: 2.088 Gaps: 17
Percent Similarity: 63.130 Percent Identity: 34.261

alignment_block:
US-09-303-518D-465 x AAV75498 ..

Align seg 1/1 to: AAV75498 from: 1 to: 576

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13 CGCAAAATATACCTTATCTG.....TCATATCTGCGAGTGTGCT 53
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5 ArgArGleuThrAsnleuAlaIaCysAlaValAlaIaValaIa 21
54 GCGGATGATGACACACGCTCAGATTGGCAAAAGCATTTTATACCGC 103

```


1051 AAGGGAATCCGCGCTGACGACATTTGGCGATGGCGGACGCCAA 1100
 332 ...GlyLysAlaValSerPheAlaSerTyrLysLys 347
 1101 ATACCGCTCCCTTACATCCCGGAATATCCGTTCAACTTGGACGAC 1150
 347 sLeuAlaLeuSerAspSerAlaArgGlnLeuTyrGlnAlaLysTyr 364
 1151 GTTACGGCAAGAAACATCACTCTCCACCGCTGCGCGCTCAACGGA 1200
 364 rGlnAlaLeuAspIleHisTyrGlnAspLeuIleArgLysThrAsp 380
 1201 AAGATGTGAACCTGGCAACAAACGCCACCGCAAGACCAAGTCCGTT 1250
 381 GlySerLysPheIleAsnGlyArg..... 389
 1251 TGACGGTAAAGGTTCCGAATTTGAAAAAGACCTAAATACGATACGA 1300
 390GluIleAspAlaVal 394
 1301 GAATTAATACCGCTGTACACCAAGTGAATCTATAGATGAAACCGCTTT 1350
 394 aThrAsnAspAlaLeuIleGlnIleLysArgThrIleSerAlaIleAsp 410
 1351 AATCCTAAGGTTCTGTGCGATCGGCTCATTTGGTCTTAACTGCCAG 1400
 411 LysProLysAsnPheLeuAsnGlnLysAsnArgLysGlnIleLysAla 427
 1401 AATCAATACGCAAAATTTACCAAGGCCAG 1429
 427 rIleGlnAlaAla.AsnGlnGlnGlyLys 436
 seq_name: /STDSJ/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:AAU27594
 seq_documentation_block:
 ID AAU27594 standard; Protein; 467 AA.
 AC AAU27594;
 DT 18-DEC-2001 (first entry)
 DE Neisseria meningitidis protein 730 sequence.
 KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORF46.1;
 KW Neisseria protein.
 OS Neisseria meningitidis.
 PN WO200164922-A2.
 XX 07-SEP-2001.
 PD 28-FEB-2001; 2001WO-IB00452.
 PF 28-FEB-2001; 2000GB-0004695.
 PR 13-NOV-2000; 2000GB-0027675.
 PA (CHIR-) CHIRON SPA.
 PI Arico MB, Comanducci M, Galeotti C, Masiangani V, Guiliani MM;
 PI Piza M;
 DR WPI; 2001-582163/65.
 XX Producing heterologous proteins from Neisseria meningitidis and N.
 PT gonorrhoeae -
 XX Claim 41; Page 59-60; 119pp. English.
 CC The invention relates to methods for the heterologous expression of
 CC Neisseria proteins from Neisseria meningitidis and Neisseria
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the

CC leader peptide, and may be replaced by a domain from a different protein
 CC to make a fusion protein, in order to enhance heterologous expression of
 CC Neisseria proteins. Also, a region of a protein, such as a poly-glycine
 CC stretch, can be mutated to enhance expression. The proteins used in the
 CC processes include ORF46.1, 287, 741, 919, 933, 961 and 983. Sequences
 CC AAU27593-AAU27610 represent Neisseria proteins and peptide regions of
 CC proteins of the invention.
 XX
 SQ Sequence 467 AA:
 alignment_scores:
 Quality: 753.00 Length: 477
 Ratio: 2.445 Gaps: 6
 Percent Similarity: 64.570 Percent Identity: 36.268
 alignment_block:
 US-09-303-518D-465 x AAU27594 ..
 Align seg 1/1 to: AAU27594 from: 1 to: 467
 13 CGCAAAATATCCCTTATCTG.....TCCATCTGCGAGTGCGCT 53
 5 ArgArgLeuThrAsnLeuAlaLysAlaValAlaAlaAla 21
 54 GCGATGCATGCACAGCCCTCAGATTGGCAACGATTTCTTATCCGCG 103
 21 uIleGlnProIleAlaLeuAlaLysPheAlaLysPheIleThr 38
 104 AGGTTCTGACCGCTGACATTTGCAACCGGCGGCAATACCACTATTC 153
 38 spAsnAlaGlnArgGlnHisTyrGlnProGlyLysTyrHisLeu 54
 154 GCGAGC...AGGGGGAACCTTCCGCGACGCGAGCTCATATCGATGG 200
 55 GlyAspProArgGlySerValSerAspArgThrGlyLysIleAsnVal 71
 201 AATCATACAAAGCGATGCTGGGCAACCTGTTCATCCAGAGCGGCGCA 250
 71 eGlnAspTyrThrHisGlnMetGlyAsnLeuLeuIleGlnIleAsn 88
 251 TTAAGGAATATCGGTATCATTTGCGCTTTCCGATCGACGCGGCGAA 300
 88 LeuAsnLysThrIleGlyThrHisThrArgPheSerGlyHisGln 104
 301 GTCCATTCGCCCTTGACACACATGCTCAGATTCGATTCGATGAGC 350
 105 GlnHisAlaProPheAspAsnHisAlaLysPheAlaSerGlnGly 121
 351 CGGTAGTCCCGTTGACGATTCAGCGCTTTACCGCATTCGATGGAGAT 400
 121 sGlnAsnValAspGlnGlyThrValTyrArgLeuAsnIleProIle 138
 401 ACGAACACCATCCCGCGCGATGACGCGGCGACGCGGCGGCGGAT 450
 138 IsGlnHisProAlaAspAlaTyrAspGlyProLysGlyAsnTyr 154
 451 CCGCGTCCCAAGGCGGAGATATATACAGCTACGACATAAAGCGT 500
 155 ProLysProThrGlyAlaArgAspGlyTyrThrHisValAsnGly 171
 501 TGCCCAAAATATCCGCTCAACCTGACCGGCAACCGGACCGGCGGCA 550
 171 rAlaArgSerIleLysLeuAsnProThrAspThrArgSerIleArgGln 188
 551 GCGTGTGACCGGTTTCCACATACCGGTATGCTAGCGAGAGAGTA 600
 188 rGlySerAspAsnTyrSerAsnLeuGlySerAsnPheSerPheArg 204
 601 GCGACGATTCAAACGCGCGACGATACAGCGCGGCGGCGGAGATC 650
 205 AspIleAlaAsnArgLysMetPheGlnHisAsnAlaLysLeuAspArg 221


```

DE Neisseria meningitidis Urr 750 protein sequence 282 12
XX Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicaemia;
KM antibacterial; gene therapy.
XX
OS Neisseria meningitidis.
PN
XX
XX WO957280-A2.
PD
XX 11-NOV-1999.
XX
PF 30-APR-1999; 99NO-US09346.
XX
XX 01-MAY-1998; 98US-0083758.
PR 31-JUL-1998; 98US-0094869.
PR 02-SEP-1998; 98US-0098994.
PR 02-SEP-1998; 98US-0099062.
PR 09-OCT-1998; 98US-0103749.
PR 09-OCT-1998; 98US-0103794.
PR 09-OCT-1998; 98US-0103796.
PR 25-FEB-1999; 99US-0121528.
XX
PA (CHIR ) CHIRON CORP.
PA (GENO ) INST GENOMIC RES.
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M,
PI Petersen J, Pizza M, Rappunli R, Ratti G, Scalato E, Scarselli M,
PI Tettelin H, Venter JC;
XX
DR MPI: 2000-062150/05.
DR N-PSDB; AA254262.
XX
XX Novel Neisserial polypeptides predicted to be useful antigens for
PT vaccines and diagnostics -
XX
PS Claim 2: Page 1183; 1453pp; English.
XX
XX AA255015 to AA254536, AA254577 to AA254615, and AAY74253 to AAY75941
CC represent novel Neisseria meningitis and N. gonorrhoeae polynucleotides
CC and polypeptides. AA254537 to AA254576 and AA254616 to AA255473 represent
CC PCR primers used in the exemplification of the present invention. The
CC polypeptides, the polynucleotides, antibodies and compositions of
CC the invention can be used as vaccines, as diagnostic reagents, and as
CC immunogenic compositions. The polypeptides can be used in the
CC manufacture of medicaments for treating or preventing infection due to
CC Neisserial bacteria (e.g. meningitis and septicaemia), to detect the
CC presence of Neisseria bacteria, or to raise antibodies. They may also
CC be used to screen for agonists or antagonists, which may themselves
CC have use as antibacterial agents. The polynucleotides of the invention
CC may also be used in gene therapy protocols.
XX
XX Sequence 498 AA:
SO
alignment_scores:
Quality: 730.50 Length: 526
Ratio: 2.364 Gaps: 14
Percent Similarity: 58.745 Percent Identity: 34.221
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US-09-303-518D-465 x AAY75500 ..
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28 ATTCGTGCATCTACTGGCAGTGTGC.....CTGCCGAT 59
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
7 LeuilelYsLeuileuAlaAlaAcysAlaValaAlaAlaAlaAlaLeuilel 23
60 GCATGCACGCCCTCAGATTGGCAACAGATCTTTATCCGGCAGTTC 109
:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
23 nProAlaLeuAlaAlaAspLeuAlaGlnAspProPheIleThrAspAsnA 40

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110 TCACCGTCAGCATTTGACACCGGGAATACACCTATTCCGAC 159
    :::::::::::::::::::: ||| |||
40 laelInglInIstYgluProglYglYstYhIstleuPheIysp 56
    :::::::::::::::::::: ||| |||
160 ... AGGGGGAACTGCCAGCGGACCGGCTCATTCGATTGGGAACAT 206
    ||||| :::::::::::::::::::: |||
57 ProIlgIlySerValSerAspArgThrgIlyInIleasnValIleGlnAs 73
    :::::::::::::::::::: |||
207 ACAAGCCATCAGTTGGGCAACCTGTTCATCCAGACGGCGCATTAAG 256
    :::::::::::::::::::: |||
73 pYtThrHisArgMetGlyAsnleuIleInIleInIleasnIleasnG 90
    :::::::::::::::::::: |||
257 GAAATGGCTACATGTGCCCTTTCCGATCAGGCGGACGAATGCAT 306
    ||| :::::::::::::::::::: |||
90 lYthIleIlyThrgIstThrgPheSerGlyInIstYgluGlnHis 106
    :::::::::::::::::::: |||
307 TCCCGCTTCGACACCATGCTCCATTCGATTCGATTCGATTCGATTC 356
    :::::::::::::::::::: |||
107 AlaProPheAspAsnHisAlaAlaAspSerAlaSerGluGlyAs 123
    :::::::::::::::::::: |||
357 TCCCGCTTCAGCATTCAGCTTTTACCGCATTCGATTCGATTCGATTC 406
    :::::::::::::::::::: |||
123 nAlAspIleuGlyPheThrgValItyArgLeuAsnTrpGluYhIstGln 140
    :::::::::::::::::::: |||
407 ACCATCCCGCGGCGCTATGACGGCGGACGAGGGCGGCTATCCGCT 456
    ||||| :::::::::::::::::::: |||
140 IsthIstProAlaAspAlaItyArgPheIlyProIlyGlyAsnItyProIly 156
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457 CCGAAGCGCGGAGGATATACAGCTACGATACGATACGATACGATAC 506
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157 ProThrgIlyAlaArgAspGluTyrThrgIstValAsnIleThrgIst 173
    :::::::::::::::::::: |||
507 AAATATCCGCTCAACCTGACCGGACCGGACCGGACCGGACCGGCTTG 556
    :::::::::::::::::::: |||
173 gSerIleIlyLeuAsnProThrgAspTrpArgSerIleArgGlnArgIle 190
    :::::::::::::::::::: |||
557 TCGACCGCTTTCACATACCGGATGATGCTGACGACGACGACGATACG 606
    ||||| :::::::::::::::::::: |||
190 eAspAsnItySerAsnleuGlySerAsnIleAsnIleAlaIleAsnProPheI 206
    :::::::::::::::::::: |||
607 GGATTCGAAGCGCGGACCGGATACGCGGACCGGATGACGATGACGCA 656
    :::::::::::::::::::: |||
207 AlaAsnItyIlyMetPheGlnIstAsnAlaIlyLeuAsnProPheI 223
    :::::::::::::::::::: |||
657 TCGCGCGGACGCTTTCACGCGGACGCTGACGATACGCAAAACATCAG 706
    :::::::::::::::::::: |||
223 nSerMetGluPheIleAsnIlyAlaIleAlaIleAlaIleAlaIleAlaIle 240
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707 GCGCGGAGGAAATGTCGCGGAGGCGGATGCCGTGACGGGTATAGC 756
    :::::::::::::::::::: |||
240 leSerAlaIleGlyAlaIleAlaIleGlyIleGlyAspIleIleuIlyThrg 256
    :::::::::::::::::::: |||
757 GAAGGCTCAACATGCTGTATGACGCGGCTGGGCTGGCTTTCACGCA 806
    :::::::::::::::::::: |||
257 TyrAlaIleAspIlyAlaIleAlaIleAlaIleAlaIleAlaIleAlaIle 273
    :::::::::::::::::::: |||
807 AAACAAGATGCGCGGATCAACGATTTGGCAGATGCGCAACTCAAG 856
    :::::::::::::::::::: |||
273 uGlyIlyPheAlaIleAlaIleGlyIleuIlySerValaIleGlyPheGlu 290
    :::::::::::::::::::: |||
857 ACTATGCGGACGACCATCCGCGATTCGCGATTCGCAAAACCCATGCC 906
    :::::::::::::::::::: |||
290 yAsnIthrgIlyAlaIleAlaIleAlaIleAlaIleAlaIleAlaIleAlaIle 306
    :::::::::::::::::::: |||
907 GCACAAGGATGAAGCGCTGACGATTCCTTACGCGGATCAACCCCGT 956
    ||||| :::::::::::::::::::: |||
307 AlaGluThrgValGluAlaIleuValAsn.....ValIleuProPh 319
    :::::::::::::::::::: |||
957 CAAAGGATGGAGCTTTCGGGAAATACGCTTGGCGGATTCACGG 1006
    :::::::::::::::::::: |||
319 e..... 319
1007 CACATCTGTCAAGGGTGCAGATGGGCGAGATCGATTGCCGAAAGG 1056
    :::::::::::::::::::: |||

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```

320 .....AlaIySvalIySAsnleuThrgIySAlaIleAlaIyPro...Gly 332
    ::||| :::::::::::::::::::: ||| |||
1057 AATCCGCGCTCAGCAGACATTTTCCGATTCGCGGATTCGCAAAATACCC 1106
    ||||| :::::::::::::::::::: |||
333 IySAlaIleAlaIleValSerGlyAspPheSerAlaIle..... 343
    :::::::::::::::::::: |||
1107 GTCCCTTCACATTCGCCAATATCCGT..... 1134
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344 .....TyrAsnThrgArgIleThrgIySValIthThrgIuThrgIuG 358
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1135 .....TCAACTTG...GAGCAG 1149
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358 lYleuAsnArgIleArgGlnAsnIlySAsnIleIstGlnIlyS 374
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1150 CGTTACGGCAAGAAACATCACCTCCGACCGCTGCCGCGGCAAC... 1197
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375 AsnItyGlyArgAspAsnProAsnHisIleAsnValIleuSerGlyAsn 391
    :::::::::::::::::::: |||
1197 ..... 1197
    :::::::::::::::::::: |||
391 rIleGlnHisIleuItyGlyAspGluAlaGlyGlyGlyHisIleuPhe 408
    ::||| :::::::::::::::::::: |||
1198 ..GGAAGAATGTGAACCTGCGCAACAAAGCGCAC..... 1230
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408 roGlyIlySProGlyIlySThrgPheProGlnIstIstPheAlaSerIly 424
    :::::::::::::::::::: |||
1231 .....CCGAGACCAAA..... 1242
    :::::::::::::::::::: |||
425 lIeThrgIstGluIleSerAspIleValIthrgSerProIlyThrgIstIty 441
    :::::::::::::::::::: |||
1243 .....GTCCGCTTTCAGCGGTAAGGTTTCGCAAT 1273
    :::::::::::::::::::: |||
441 rAlaGlnThrgIlyThrgIyIlySlyIleAlaIlySlyArgPro.... 456
    ::||| :::::::::::::::::::: |||
1274 TTGAAAAGAGCTAAATACGATACGAGA..... 1302
    ::||| :::::::::::::::::::: |||
457 ..AlaArgTrpValSerItyGluThrgArgAspGlyIleArgIleArgIthrg 472
    ::||| :::::::::::::::::::: |||
1303 .....ATTATACCGCTGTACCAAGTGAA 1328
    ::||| :::::::::::::::::::: |||
473 ValItyGluProAlaThrgIyIlySValIalThrgAlaPhePro.....As 487
    ::||| :::::::::::::::::::: |||
1329 TCCATAGATGACCGGCTTAAATCC 1356
    ::||| :::::::::::::::::::: |||
487 pArgThrgSerAsnProIlySlyAsnPro 496
    ::||| :::::::::::::::::::: |||
seq_name: /SIBS1/9cdata/geneseq/geneseqp-emb1/AA2001.DAT:AAU27596
seq_documentation_block:
ID AAU27596 standard; Protein: 353 AA.
AC AAU27596;
AT 18-DEC-2001 (first entry)
DT
DE Fusion protein 730-C2 containing 185 insertion sequence.
KW Neisseria gonorrhoeae; leader peptide; fusion protein; ORP46.1;
KW Neisserial protein.
OS Neisseria meningitidis.
OS Escherichia coli.
XX WO200164922-A2.
XX 07-SEP-2001.
XX 28-FEB-2001; 2001WO-1B00452.
XX 28-FEB-2000; 2000GB-0004695.
XX 13-NOV-2000; 2000GB-0027675.
XX

```

PA (CHIR-) CHIRON SPA.
 XX Arico MB, Comanducci M, Galeotti C, Massignani V, Gulliani MM;
 PI Pizza M;
 XX WPI, 2001-582163/65.
 DR Producing heterologous proteins from *Neisseria meningitidis* and *N.*
 PT gonorrhoeae -
 XX
 XX Example 21: Page 61, 119pp: English.
 PS
 XX The invention relates to methods for the heterologous expression of
 CC Neisserial proteins from *Neisseria meningitidis* and *Neisseria*
 CC gonorrhoeae. At least one domain in the protein is deleted, e.g. the
 CC leader peptide, and may be replaced by a domain from a different protein
 CC to make a fusion protein, in order to enhance heterologous expression of
 CC Neisserial proteins. Also, a region of a protein, such as a poly-glycine
 CC stretch, can be mutated to enhance expression. The proteins used in the
 CC processes include ORF46.1, 287, 741, 919, 953, 961 and 983. Sequences of
 CC AAU27553-AAU27610 represent Neisserial proteins and peptide regions of
 CC proteins of the invention.
 CC
 XX
 SQ Sequence 353 AA:

alignment_scores: Length: 370
 Quality: 729.50
 Ratio: 2.839
 Gaps: 4
 Percent Similarity: 69.459 Percent Identity: 41.351.

alignment_block:
 us-09-303-518d-465 x AAU27596 ..

Align seg 1/1 to: AAU27596 from: 1 to: 353

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2  ALaAspLeuAlaGlnAspProPheIleThrAspAsnAlaGlnArgGlnH 18
123 TTTCGACCCGACGCGGAATACCACTATTCGCGACG...AGGGGGGAAAC 169
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18 sTyrtGlnProGlyGlyLysTyrHisLeuPheGlyAspProArgGlySerV 35
170 TTGCGGACGCGACGCGTCATATCGGATTTGGAAACATACAAAGCCATCAG 219
   ::::::::::::::::::::: :::::::::::::::::::::
35 aIserAspArgThrGlyLysIleAsnValIleGlnAspTyrThrHisGln 51
220 TTGGGCAACCTGTTCATCCAGCAGCGGCGCATTAAGGAATATCGGCTA 269
   ::::::::::::::::::::: :::::::::::::::::::::
52 MetGlyAsnLeuLeuIleGlnGlnAlaAsnIleAsnGlyThrIleGlyTy 68
270 CATTTGCGCGTTTTCGATCCAGCGGCGCAAGTCATTCGCCCTTCGACA 319
   ::::::::::::::::::::: :::::::::::::::::::::
68 rHisThrArgPheSerGlyHisGlyHisGlyHisIleAsnLabrPheAsp 85
320 ACCATGCGTCACATCCGATTCGATGAAGCCGCGTACGCGTCGACGGA 369
   ::::::::::::::::::::: :::::::::::::::::::::
85 snHisIleAlaAspSerAlaSerGlyGlyGlyAsnValAspGlnGly 101
102 PheThrValTyrArgLeuAsnTrpGlyHisGlyHisIleAsnProAlaAs 118
370 TTGAGCGCTTACCGCATTCGATTTGGAGGATAGCAACACATCCCGCGGA 419
   ::::::::::::::::::::: :::::::::::::::::::::
420 CGGCTATGACGGCGCACAGCGCGCGCATCCGCTCCCAAGCGCGGA 469
   ::::::::::::::::::::: :::::::::::::::::::::
118 pAlaTyrAspGlyProLysGlyLysAsnTyrProLysProThrGlyAlaA 135
470 GGGATATATACAGCTAGACATAAAGCGCTTGCCCAAAATATCCGCGCTC 519
   ::::::::::::::::::::: :::::::::::::::::::::
135 rGAspArgLysTyrThrTyrHisValAsnGlyThrAlaArgSerIleLysLeu 151
520 AACCTGACGCAACCGCGACGCGGACAAAGCGCTTGTCAGCGTTTCCA 569

```

```

111 ::::::::::::::::::::: :::::::::::::::::::::
152 AsnProThrAspThrArgSerIleArgGlnArgIleSerAspAsnTyrSe 168
570 CATACCGGTAGTATGCTGACGCAAGAGTACGCGCATTCACAGCG 619
   ::::::::::::::::::::: :::::::::::::::::::::
168 rAsnLeuGlySerAsnPheSerAspArgAlaAspGlnAlaAsnArgLysW 185
620 CCACCGCATACAGCCCCGAGCTGGACAGATGCGCGCGAGCT 669
   ::::::::::::::::::::: :::::::::::::::::::::
185 etPheGlnHisAsnAlaLysLeuAspArgTyrGlyAsnSerMetGlnPhe 201
670 TTCACGCGCATCGATATCGTCAAAAACATCATCGCGCGCGGACAGA 719
   ::::::::::::::::::::: :::::::::::::::::::::
202 IleAsnGlyValAlaAlaGlyAlaLeuAsnProPheIleSerAlaGly 218
720 AATTGCGCGCAGCGCATGCGCTGACGGGTATACGCAAGGCTCAACA 769
   ::::::::::::::::::::: :::::::::::::::::::::
218 uAlaLeuGlyIleGlyAspIleLeuTyrGlyThrArgTyrAlaIleAsp 235
770 TTGCGTTATGACAGCGCTGGCTGCTCTTCCACGCAAAACAAAGTGGCG 819
   ::::::::::::::::::::: :::::::::::::::::::::
235 yAlaAlaMetArgAsnIleAlaProLeuProAlaGlnGlyLysPheAla 251
820 CGCATCAACGATTTGGCAGATATGCGCAACTCAAAAGACTATGCCGAC 869
   ::::::::::::::::::::: :::::::::::::::::::::
252 ValIleGlyLysLeuGlySerValAlaGlyPheGlyLysAsnThrArgG 268
870 AGCCATCCGCGATTTGGCGACATCCCAAAACCGCATGCGCGACAGCATAG 919
   ::::::::::::::::::::: :::::::::::::::::::::
268 uAlaValAspArgTyrPheGlnGlnAsnProAsnAlaAlaGlnThrValG 285
920 AAGCGCTCAGCAATATCTTACGGCAGCTATCCCGCTCAAAAGGATTTGGA 969
   ::::::::::::::::::::: :::::::::::::::::::::
285 LuAlaValAlaPheAsnValAlaAlaA..... 293
970 GCTGTTCGGGGAATATACGCGCTTGGCGGCGATCAGCGCATCTGTCAA 1019
   ::::::::::::::::::::: :::::::::::::::::::::
294 .....AlaLys 295
1020 GCGGTCGCGATGCGCGAGATCGCATTTCCGAAAGGGAATCCGCGCTCA 1069
   ::::::::::::::::::::: :::::::::::::::::::::
295 sValAlaLysLeuAlaLysAlaLysPro...GlyLysAlaAlaValAs 311
1070 GCGACATTTTCCGATGCGCGCATACGCCAAATCCGCTCCCTTACCAT 1119
   ::::::::::::::::::::: :::::::::::::::::::::
311 eArgLysAspPheAlaAspSerTyrLysLysLysLeuAlaLeuSerAspSer 327
1120 TCCGGAATATCCGTTCAACTTGAGCAGCGCT.....TACGCAACAAGA 1163
   ::::::::::::::::::::: :::::::::::::::::::::
328 AlaArgGlnLeuTyrGlnAsnAlaLysTyrArgGlnAlaLeuGlyLysVa 344
1164 AACATCATCAC 1173
   :::::::::::::::::::::
344 lArgIleSer 347

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seq_name: /SIDS1/gcgdata/geneseq/geneseq-emb1/AA2001.DAT:AAU27595
 seq_documentation_block:
 ID AAU27595 standard; Protein: 377 AA.
 XX AAU27595;
 AC 18-DEC-2001 (first entry)
 XX Fusion protein 730-C1 containing ISI insertion sequence.
 DE *Neisseria gonorrhoeae*; leader peptide; fusion protein; ORF46.1;
 KW *Neisseria* protein.
 OS *Neisseria meningitidis*.
 OS *Escherichia coli*.
 XX WO200164922-A2.

OS Neisseria sp.
 XX W020006741-A2.
 XX
 PD 09-NOV-2000.
 XX
 PF 28-APR-2000; 2000WO-1B00642.
 XX
 PR 30-APR-1999; 99GB-0010168.
 PR 09-MAR-2000; 2000GB-0005728.
 XX
 PA (CHIR-) CHIRON SPA.
 XX
 PI Rappuoli R;
 XX
 DR WPI; 2000-687543/67.
 XX
 XX Novel Neisserial protein fragments and their corresponding nucleic
 PT acids, useful in the manufacture of medicines for the prevention of
 PT Neisserial infection, and in the manufacture of diagnostic reagents -
 XX
 PS Claim 15; Page 58; 157pp; English.
 XX
 CC The present peptide is a conserved region of a Neisserial protein.
 CC Neisserial proteins containing this sequence, and the nucleic acids
 CC that encode such proteins, are useful in the manufacture of medicines
 CC for the prevention of Neisserial infection, and in the manufacture of
 CC multi-specific diagnostic reagents.
 XX
 SQ Sequence 125 AA;

alignment_scores:
 Quality: 674.00 Length: 125.
 Ratio: 5.392 Gaps: 0
 Percent Similarity: 100.000 Percent Identity: 97.600

alignment_block:
 US-09-303-518D-465 x AAB37856 ..

Align seg 1/1 to: AAB37856 from: 1 to: 125

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205 ATACAAAGCCATGATGGGCAACCTGTCATCCAGCAGCGGCATTA 254
    |||||||
1  116G1SerHisG1nLeuG1yAsnLeuMe116G1nG1Ala1Ala1leu1y 17
255 AGGAATATGCGCTACATGTCGCTTCCGATCCAGCGGACAGACTCC 304
    |||||||
17  SGIyAsn116G1yT116Val1ArG1nSer1Asp116G1yHisG1Val1H 34
305 ATTCGCCCTTGCAGAACCATGCTCCATTCGATTCGTAAGCCGCT 354
    |||||||
34  116SerPro1n6p1Asn1His1Ala1Ser1His1Ser1Ser1Asp116Ala1G1y 50
355 AGTCCGCTTGCAGATTCAGCTTACCCGATCCAGATCCAGTGGAGCGATACGA 404
    |||||||
51  SerPro1Val1Asp116G1ySer1Leu1yArG116His1Trp1Asp116G1yTrG1 67
405 AACGACATCCCGCGAGCGGCTATGACGGGCCACAGCGCGGCGGTATCCG 454
    |||||||
67  UH1His1Ser1Ala1Asp116G1yTrp1Asp116G1yTrp1G1nG1yTrp1Pro 84
455 CTCCCAAGAGCGGAGGATATATACAGTACGACATTAAGCGCTTGGC 504
    |||||||
84  1ArPro1ySG1yAla1ArG1Asp116G1ySer1yTrp1Asp116G1yVal1Ala 100
505 CAATATTCGCTCAACTGACCGACACCGACGACGCGGACGCGCT 554
    |||||||
101 G1nAsn116Ar1G1eUsn1Leu1n1Asp1Asn1ArG1Ser1TrG1y1n1ArG1e 117
555 TGTGACCGCTTCCACAATACCGGT 579
117 UAla1Asp1ArG1nHis1Asn1AlaG1y 125
  
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seq_name: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2000.DAT:AAV75402

seq_documentation_block:
 ID AAV75402 standard; Protein; 131 AA.

AC AAV75402;

DT 21-MAR-2000 (first entry)

DE Neisseria meningitidis ORF 686 protein sequence SEQ ID NO:2278.

XX Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;

KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;

KW antibacterial; gene therapy.

OS Neisseria meningitidis.

PN W09957280-A2.

PD 11-NOV-1999.

PF 30-APR-1999; 99WO-US09346.

PR 01-MAY-1998; 98US-0083758.

PR 31-JUL-1998; 98US-0094869.

PR 02-SEP-1998; 98US-0098994.

PR 02-SEP-1998; 98US-0099062.

PR 09-OCT-1998; 98US-0103749.

PR 09-OCT-1998; 98US-0103794.

PR 09-OCT-1998; 98US-0103796.

PR 25-FEB-1999; 99US-0121528.

PA (CHIR) CHIRON CORP.

PA (GENO-) INST GENOMIC RES.

PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;

PI Petersen J, Piza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;

PI Tettelin H, Venter JC;

DR WPI; 2000-062150/05.

DR N-PSDB; AA254164.

PT Novel Neisserial polypeptides predicted to be useful antigens for

PT vaccines and diagnostics -

PS Claim 2; Page 1101-1102; 1453pp; English.

XX AA253015 to AA254536, AA254577 to AA254615, and AAV74253 to AAV75941

XX represent novel Neisseria meningitis and N. gonorrhoeae polynucleotides

XX and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent

XX PCR primers used in the exemplification of the present invention. The

XX polypeptides, the polynucleotides, antibodies and compositions of

XX the invention can be used as vaccines, as diagnostic reagents, and as

XX immunogenic compositions. The polypeptides can be used in the

XX manufacture of medicaments for treating or preventing infection due to

XX Neisserial bacteria (e.g. meningitis and septicemia), to detect the

XX presence of Neisseria bacteria, or to raise antibodies. They may also

XX have use as antibacterial agents, or antagonists, which may themselves

XX may also be used in gene therapy protocols.

SO Sequence 131 AA;

alignment_scores:
 Quality: 657.00 Length: 131
 Ratio: 5.015 Gaps: 0
 Percent Similarity: 100.000 Percent Identity: 100.000

alignment_block:
 US-09-303-518D-465/rev x AAV75402 ..

Align seg 1/1 to: AAY75402 from: 1 to: 131

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723 AATTTCCTGCGCGCGCGATGATGTTTGGAGATATCTGACGCGCT 674
    |||||||
1  AsnphesercysarGalaaSpaSpValPheasPspIleCysSerAlaVa 17
673 TGAAGCTTCGGCGGATGCGCGATCTGTCAGCTCGGGGCGGTATCGG 624
    |||||||
17 lGusSerPheGlyGlyIleAlaArgSerValGlnLeuGlyAlaValSerG 34
623 GTGGCGCGTTTGATCCGTCGCTACTCTCTGGCTAGCATACACTACGGT 574
    |||||||
34 lylGlyAlaPheGlnSerValAlaIaTySerLeuArgGlnHisThrThrGly 50
573 ATGTGGAAACGGTGCAGCAAGCGCTGTCCGGCTGCGGCTGCTGCGTCA 524
    |||||||
51 lIleValGlnThrValAlaSpysProlLeuSerGlyAlaAlaValAlGly 67
523 GGTGAGCGGATATTTTGGCAACCGCTTTATGTCGTAGCTGTATATA 474
    |||||||
67 nValGlnAlaAspIleLeuGlyAsnAlaPheTyValAlaValAlaTyrt 84
473 TCCCTGCGCGCTTTGGGAGCGGATAGCCGCGCTGTGGCCGCTCATTA 424
    |||||||
84 lEproArGalAlaPheGlySerGlyIleAlaAlaLeuTrpProValIle 100
423 GCGGTGCGGCGGATGTTGTCGATCCGTCGCAATGATGCGTAAAGGC 374
    |||||||
101 AlalValAlGlyGlyMetValAlaPheValSerValProMetAspAlaValAl 117
373 TGAATCGGTCAACGAGCTACCGGCTTCATCAGATCGGATG 331
    |||||||
117 aGlnSerValAlaSnGlyThrThrGlyPheIleArgIleGlyMet 131
seq_name: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2000.DAT: AAY75400

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seq_documentation_block:

ID AAY75400 standard; Protein: 131 AA.

AC AAY75400;

DT 21-MAR-2000 (first entry)

DE Neisseria gonorrhoeae ORF 686 protein sequence SEQ ID NO:2274.

XX Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;

KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;

KW antibacterial; gene therapy.

XX Neisseria gonorrhoeae.

OS WO9957280-A2.

PD 11-NOV-1999.

XX 30-APR-1999; 99WO-US09346.

XX 01-MAY-1998; 98US-0083758.

XX 31-JUL-1998; 98US-0094869.

XX 02-SEP-1998; 98US-0098994.

XX 02-SEP-1998; 98US-0099062.

XX 09-OCT-1998; 98US-0103749.

XX 09-OCT-1998; 98US-0103794.

XX 25-FEB-1999; 99US-0121528.

PA (CHIR) CHIRON CORP.
 PA (GENO-) INST GENOMIC RES.
 XX Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;
 PI Petersen J, Pizsa M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
 PI Tettelin H, Venter JC;

DR WPI: 2000-062150/05.
 DR N-PDB; AA254162.

XX Novel Neisserial polypeptides predicted to be useful antigens for
 PT vaccines and diagnostics

XX Claim 2; Page 1101; 1453pp; English.

XX AA253015 to AA254536, AA254577 to AA254615, and AAY74253 to AAY75941
 CC represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides
 CC and polypeptides. AA254537 to AA254576 and AA254616 to AA25473 represent
 CC PCR primers used in the exemplification of the present invention. The
 CC polypeptides, the polynucleotides, antibodies and compositions of
 CC the invention can be used as vaccines, as diagnostic reagents, and as
 CC immunogenic compositions. The polypeptides can be used in the
 CC manufacture of medicaments for treating or preventing infection due to
 CC Neisserial bacteria (e.g. meningitis and septicemia), to detect the
 CC presence of Neisseria bacteria, or to raise antibodies. They may also
 CC be used to screen for agonists or antagonists, which may themselves
 CC have use as antibacterial agents. The polynucleotides of the invention
 CC may also be used in gene therapy protocols.

XX Sequence 131 AA;

alignment_scores:

Quality:	636.00	Length:	131
Ratio:	4.892	Gaps:	0
Percent Similarity:	99.237	Percent Identity:	96.183

alignment_block:

us-09-303-518d-465/rev x AAY75400

Align seg 1/1 to: AAY75400 from: 1 to: 131

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723 AATTTCCTGCGCGCGCGATGATGTTTGGAGATATCTGACGCGCT 674
    |||||||
1  AsnphesercysarGalaaSpaSpValPheasPspIleCysSerAlaVa 17
673 TGAAGCTTCGGCGGATGCGCGATCTGTCAGCTCGGGGCGGTATCGG 624
    |||||||
17 lGlnGlyPheGlyGlyIleAlaArgSerValGlnLeuGlyAlaValSerG 34
623 GTGGCGCGTTTGATCCGTCGCTACTCTCTGGCTAGCATACACTACGGT 574
    |||||||
34 lylGlyAlaPheGlnSerValAlaIaTySerLeuArgGlnHisThrThrGly 50
573 ATGTGGAAACGGTGCAGCAAGCGCTGTCCGGCTGCGGCTGCTGCGTCA 524
    |||||||
51 lIleValGlnThrValAlGlyLysProlLeuSerGlyAlaAlaValAlGly 67
523 GGTGAGCGGATATTTTGGCAACCGCTTTATGTCGTAGCTGTATATA 474
    |||||||
67 nValGlnAlaAspIleLeuGlyAsnAlaPheTyValAlaValAlaTyrt 84
473 TCCCTGCGCGCTTTGGGAGCGGATAGCCGCGCTGTGGCCGCTCATTA 424
    |||||||
84 lEproArGalAlaPheGlySerGlyIleAlaAlaLeuTrpProValIle 100
423 GCGGTGCGGCGGATGTTGTCGATCCGTCGCAATGATGCGTAAAGGC 374
    |||||||
101 AlalValAlGlyGlyMetValAlaPheValSerValProMetAspAlaValAl 117
373 TGAATCGGTCAACGAGCTACCGGCTTCATCAGATCGGATG 331
    |||||||
117 aGlnSerValAlaSnGlyThrThrGlyPheValAlArgIleGlyMet 131

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seq_name: /SIDSI/gcgdata/geneseq/geneseq-emb1/AA2000.DAT: AAY75401

seq_documentation_block:

ID AAY75401 standard; Protein: 163 AA.

XX AAY75401;

[illegible]

```

1122 CCAAAATATC.....CGTCAACACTGGAGC 1147
      :|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|
394 uclnsmnleuasmnleialaAginAspPrrAigrLeuSerleuAlaI 411
      :|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|
1148 AGCGTTACGGCAAGAAAACATCATCCTCTCAACC 1182
      :|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|
411 leHisGlucIlyLysLysAsnPhpePoiIleGlyThr 422
      :|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|

seq_name: /SIDS1/gcndata/geneseq/geneseq_emb1/AA1999.DAT:AA198586

```

```
seq_documentation_block:
ID      AAY38584 standard; Protein; 498 AA.
yy
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AC AAY38584;

DT 08-OCT-1999 (first entry)

DE *Neisseria gonorrhoeae* antigen encoded by ORF29.

KW *Neisseria meningitidis*; *Neisseria gonorrhoeae*; antigen; vaccine;
treatment; *Neisseria* infection; meningitis; septicaemia; gonorrhoea

OS *Neisseria gonorrhoeae*.

PN W09924578-A2.

PD 20-MAY-1999.

PF 09-OCT-1998; 98WO-IB01665.

PR	01-SEP-1998;	98GB-0019016.
PR	06-NOV-1997;	97GB-0033516

PR 14-NOV-1997; 97GB-0024190.

PR	27-NOV-1997;	97GB-0025158.
PR	10-DEC-1997;	97GB-0036147

PR 14-JAN-1998; 98GB-0000759.

PA (CHIR-) CHIRON SPA.
XY

PI Grandi G, Masignani V, Pizza M, Rappuoli R, Scariato V, et al. 2000. *Journal of Infectious Diseases* 181: 1011-1018.

DR WPL; 1999-321401/21
DR N-PSDB; AA712045

XX proteins from *Neisseria meningitidis* and *N. gonorrhoeae* useful for

XX diagnosis, treatment and prevention of infectious

PS Claim 4; Page 146-147; 324pp; English.
XX

CC Amino acid sequences AAI38499-138944 represent *Neisseria meningitidis* and *N. gonorrhoeae* antigenic proteins. They are encoded by open

CC Reading frames (ORFs) AA2119/2-212358. The antigenic proteins, CC their fragments, their nucleic acids and antibodies are used for CC their fragments, their nucleic acids and antibodies are used for

infections such as meningitis, septicaemia and gonorrhoea. Both

CC are useful as hybridisation probes and antisense reagents.

AA	Sequence	498	AA:
SO			

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alignment_scores:
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Percent Similarity: 58.427 Percent Identity: 33.034

US-09-303-518D-465 X AAY38584

Align seg 1/1 to: AAY38584 from: 1 to: 498

CC Neisseria gonorrhoea and N. meningitidis infections.
 XX
 SO Sequence 509 AA;

alignment_scores:
 Quality: 454.00 Length: 411
 Ratio: 1.884 Gaps: 18
 Percent Similarity: 58.637 Percent Identity: 32.847

alignment_block:
 US-09-303-518d-465 x AAW18786 ..

Align seg 1/1 to: AAW18786 from: 1 to: 509

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31 CTGTCCATACCTGGCAGTGTGCTGCCGATGCATGCACACGCTCAGATT 80
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
16 IISerLeuLeuGlnIleProIle.....SerHisAlaAsnGlyLe 29
81 GCGAAGCAGTTCTTTATCCGGCAGGTTTTCGACCGCTCAGCATTTGCAAC 130
   | ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
29 u.....AspAlaArgLeuAlaGAspAspMetGlnAlaLysHisIlyGluP 44
131 CCGACGGGAAATATACCATCTATTCGCG...AGCAGGGGGGAACTTCCGAG 177
   || ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
44 roGlyGlyLysThrHisLeuPheGlyAsnAlaArgGlySerValLysAsn 60
178 CCGACCGGTCATATCGGATTGGGAAACATACAAAGCCATCACTTGGGCAA 227
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
61 ArgVal.....CysAlaValGlnThrPheAspAlaThrAlaValGlyPr 75
228 CCGTGTTC.....ATCCAGCAGCGGCGCATTAAGAAATATCGCT 268
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
75 oIleLeuProIleThrHisGluArgThrGlyPheGlnGlyIleIleGlyT 92
269 ACATGTCCGCTTTTCCGATCAGGGGCAAGAGTCCATTCCTCCCTTCAGC 318
   || ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
92 yGlnThrHisPheSerGlyHisGlnValHisSerProPheAsp 108
319 AACCATGCTCAGTTCGATTCGTATGAAGCGGCTAGTCCGCTGACGG 368
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
109 AsnHisAspSerLysSerThrHisPheSerGlyGlyValAspGlyLeI 125
369 ATTCAAGCCTTATCCGATCCATTTGGGAGCAGATACGACACATCCCGCG 418
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
125 yPheThrValIlyGlnLeuHisArgThrGlySerGluIleHisProAla 142
419 ACGGCTATAGCGGCCACAGGCGCGGCTATCCGCTCCCAAGAGCGCG 468
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
142 spGlyTyrAspGlyProGlnGlyGlyTyrProGlnIleValAla 158
469 AAGGATATATACGATACGACATATAAAGCGCTGGCCCAAAATATCGCGT 518
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
159 ArgAspIleTyrSerThrHisIleLysGlyThrSerThrLysThrLysI 175
519 CAAC.....CTGACCGACACCC 535
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
175 eAsnThrValProGlnAlaProPheSerAspArgThrPleuLysGluAsnAl 192
536 GCAGCAGCGACACGCTTGTGACCGTTTCCACATATCCGAGTATATG 585
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
192 laGlyAlaIleSerGlyPheLeuSerArgAlaAspGlyAlaGlyLysLeu 208
586 CTGACCGAAGAGTAGGCGAGGATTCAAAGCGCACCGCCATACAGGCC 635
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
209 ILeThrGlnAsnAspProAspLysAsnThrPArgAlaAsnArgMetAsp.. 224
636 CAGAGTCGACAGATCGGCAATGCGCGCAAGCTTTCACGCGCACTGCAG 685
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
225 .....AspIleArgGlyIleValGlnGlyAlaValAsn..... 235
686 ATATGCTCAAAAACATATCGGCGCGGCGGCAAGAAATGTGCGCGCA... 732
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||

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236 .....ProPheLeuThrGlyPheGlnGlyLeuGlyValGlyAlaIle 249
733 ...GGCATGCCGTGCAGGCTATAGGAAAGGCTCA.....AAAT 770
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
250 ThrAspSerAlaValSerProValThrTyrAlaAlaAlaArgLysThrLe 266
771 TGCCTTATGACAGGCTTGGCTGCTGCTTTCACCCGAAACAGATGGCG 820
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
266 uGlnGlyIleHisAsnLeuGlyAsnLeuSerProGlnAlaGlnLeuAla 283
821 GCATCAACGATTTGGCAGATATGGCG...CAACTCAACAGCTATGCCGCA 867
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
283 laAlaSerLeuLeuGlnAspSerAlaPheAlaValLysAspGlyIleAsn 299
868 GCAGCCATCCGCGCATTTGGCGAGTCGCAAAACCCGATATCCGCAAGGAT 917
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
300 SerAla...ArgGlnThrAlaAspAlaHisProAsn.....11 311
918 AGAAGCCGTGACGAAATATCTTTACGGCAGTATCCCGCTCAAGAGATG 967
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
311 eThrAlaThrAlaGlnThrAlaLeuAlaValAlaGlyAlaIleGly... 326
968 GAGCTGTTCGGGAAATATACGCTTGGCGGCGCATCACGCGACATCCTGTC 1017
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
327 .....ThrValThrPGLyGlyLysLysValGlyLeuAsn 337
1018 AAGGGTTCGC...AGATGGCGAGATGCGCATTCGCCGAAAGGAAATCCGC 1064
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
337 nProThrLysThrAspTrp.....ValLysAsnThrGlyTyrGlyLysProAla 353
1065 CGTCAGCGACAAATTTTCCGATGCGGCGCATACGCCAAATATCCGCTTC 1114
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
344 .....ValLysAsnThrGlyTyrGlyLysProAla 353
1115 ACCATTTCCGAAATATCTGTTCAACTTGGAGCAGCGCTTACGCGAAAGA 1164
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
354 AlaArgPro.....MetGlnThrValAspGlyGlyIleMetAlaGly 367
1165 AACATCACTTCCTCAGCCGTGCGCGCGCTCA 1195
   ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||
367 sAsnLysProProLysProSerThrGlnGln 377
seq_name: /sids1/gcgdata/geneseq/geneseq-emb1/AA1999.DAT:AA1999
seq_documentation_block:
ID AA1999 standard; protein; 468 AA.
XX
AC AA1999 standard; protein; 468 AA.
XX
AC AA1999 standard; protein; 468 AA.
XX
DT 08-OCT-1999 (first entry)
XX
DE Neisseria gonorrhoeae antigen encoded by ORF29.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW treatment; Neisseria infection; meningitis; septicemia; gonorrhea.
XX
OS Neisseria gonorrhoeae.
XX
PN WO924578-A2.
XX
PD 20-MAY-1999.
XX
PF 09-OCT-1998; 98WO-1B01665.
XX
PR 01-SEP-1998; 98GB-0019016.
PR 06-NOV-1997; 97GB-0023516.
PR 14-NOV-1997; 97GB-0024190.
PR 18-NOV-1997; 97GB-0024386.
PR 27-NOV-1997; 97GB-0025158.
PR 10-DEC-1997; 97GB-0026147.
PR 14-JAN-1998; 98GB-0000759.
XX
PA (CHIR-) CHIRON SPA.

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xx Grandi G, Maignani V, Pizza M, Rappuoli R, Scarlato V;
xx WPI, 1999-327407/27.

xx Proteins from *Neisseria meningitidis* and *N. gonorrhoeae* useful for
xx diagnosis, treatment and prevention of infection

xx Claim 4; Page 146; 524pp; English.

xx Amino acid sequences AAY38499-Y38944 represent *Neisseria meningitidis*
xx and *N. gonorrhoeae* antigenic proteins. They are encoded by open
xx reading frames (ORFs) AAZ11972-212358. The antigenic proteins,
xx their fragments, their nucleic acids and antibodies are used for
xx diagnosis, prevention (as vaccines) or treatment of *Neisseria*
xx infections, such as meningitis, septicemia and gonorrhea. Both
xx organisms are closely related. Fragments of the nucleic acids
xx are useful as hybridisation probes and antisense reagents.

xx Sequence 468 AA:

alignment_scores:
Quality: 451.00 Length: 475
Ratio: 1.689 Gaps: 20
Percent Similarity: 56.211 Percent Identity: 31.368

alignment_block:
US-09-303-518D-465 x AAY38583

Align seg 1/1 to: AAY38583 from: 1 to: 468

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178 GCGAGCGGTATATCGGATGGGAACATACAAAGCCATCATGTTGGCAA 227
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269 ACATTGTCGCTTTTCCGATCCAGGCGGAGGAGTCCATTCGCCCTTGAC 318
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92 YGlnThrHisPheSerGlyHisGlnIleValHisSerProPheAsp 108
319 AACCATGCCATCATTCGATTCGATGAAAGCGGTAGTCCGTTGACGG 368
   || ::::::::::: ::::::::::: :::::::::::
109 AsnHisAspSerIysSerThrSerAspPheSerGlyIleValAspGly 125
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419 ACGGCTATGAGCGGCGACAGGCGGCGGTATCCGCGTCCCAAGCGCG 468
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469 AGGATATATACAGTACGACATAAAGCGTGGCCAAATATCCGCGCT 518
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519 CAAC.....CTGACCGGACAAAC 535

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586 CTGACGCAAGGATAGGCGACGATTCAAACGCGCCACCGCATACAGCC 635
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636 CGAGCTGGACAGATCGGGCAATGCGCCGGAAGCTTTTCACGCGCATG 665
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686 ATATCGTCMAAATATCATGCGCGCGCGGACGAAATTCGCGCGCA... 732
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733 ...CGCGATGCCCTGCGAGGATATAGCGCAAGCGTCA.....AACAT 770
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1079 TT.....GCCGAT 1086
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seq_name: /SIBS1/gcgdata/geneseq/geneseq-emb1/AA2000.DAT:AA74709

seq_documentation_block:

ID AA74709 standard; Protein: 385 AA.

XX AC AA74709;

XX DT 21-MAR-2000 (first entry)

DE Neisseria meningitidis ORF 238 protein sequence SEQ. ID NO:892.

XX Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;

KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;

KW antibacterial; gene therapy.

XX OS Neisseria meningitidis.

XX PN W09957280-A2.

XX PD 11-NOV-1999.

XX PF 30-APR-1999; 99WO-US09346.

XX PR 01-MAY-1998; 98US-0083758.

XX PR 31-JUL-1998; 98US-0094869.

XX PR 02-SEP-1998; 98US-0098994.

XX PR 02-SEP-1998; 98US-0099062.

XX PR 09-OCT-1998; 98US-0103749.

XX PR 09-OCT-1998; 98US-0103794.

XX PR 09-OCT-1998; 98US-0103796.

XX PR 25-FEB-1999; 99US-0121528.

XX PA (CHIR) CHIRON CORP.

XX PA (GENO-) INST GENOMIC RES.

XX PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;

XX PI Petersen J, Pizzo M, Rappuoli R, Ratti G, Scalato E, Scarselli M;

XX PI Tettelin H, Venter JC;

XX DR WPI: 2000-062150/05.

XX DR N-PSDB: AA253471.

XX PT Novel Neisserial polypeptides predicted to be useful antigens for

XX PS vaccines and diagnostics

XX PS Claim 2; Page 546; 1453pp; English.

XX AA253015 to AA254536, AA254577 to AA254615, and AA74253 to AA75941

XX CC represent novel Neisseria meningitidis and N. gonorrhoeae polynucleotides

XX CC and polypeptides; AA254537 to AA254576 and AA254616 to AA254673 represent

XX CC PCR primers used in the exemplification of the present invention. The

XX CC polypeptides, the polynucleotides, antibodies and compositions of

XX CC the invention can be used as vaccines, as diagnostic reagents, and as

XX CC immunogenic compositions. The polypeptides can be used in the

XX CC manufacture of medicaments for treating or preventing infection due to

XX CC Neisseria bacteria (e.g. meningitis and septicemia), to detect the

XX CC presence of Neisseria bacteria, or to raise antibodies. They may also

XX CC be used to screen for agonists or antagonists, which may themselves

XX CC have use as antibacterial agents. The polynucleotides of the invention

XX CC may also be used in gene therapy protocols.

XX SQ Sequence 385 AA;

alignment_scores:

Quality: 413.00 Length: 386

Ratio: 1.796 Gaps: 15

Percent Similarity: 59.585 Percent Identity: 32.902

alignment_block:

US-09-303-518D-465 x AA74709

Align seg 1/1 to: AA74709 from: 1 to: 385

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44 roglYglYlYsTYrHisleuPheglYasnAlaArgglYserValYsAsn 60
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269 ACATTGTCCGCTTTCCGATCCAGCGGCAAGTCAATTCCTCCCTGAC 318
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92 YrGlnThrHisPheSerGlyHisglYasnAlaHisserProPheasp 108
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319 AACCATGCTCAGCATTCGATTCGATGAAGCGCGGTAGTCCGTTGACG 368
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109 AsnHisaspSerLysSerThrSerAspPheSerGlyValAlaaspGly 125
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369 ATTGAGCTTTACCGCATTCATTTGGGAGCGGATACCAACCATCCCGCG 418
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142 spglYTYrAspGlyProGlnIleSerAspTYrProProGlyGlyAla 158
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469 AGGATATATACAGTACGATCAAGCAATGAAGCGTCCCAATATCCGCT 518
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159 ArgaspIleTYrSerTYrTYrValYlYsGlyThrSerThrLysThrLys 175
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175 rAsnIleValProArgAlaProPheSerAspArgTYrLeuYsAsnA 192
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209 IletPglUserAspProAsnLysAsnTYrTrpAlaAsnArgMetAspAs 225
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713 CAGGAGAAATTTGCGCGCA.....GGCATGCGGTGACGAGTATAGC 756
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757 GAAGGCTCAACATGCTGTATGACGCG.....TTGGGTCTGCT 797
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259 AspThrAlaIaGlnGlnThrleuGlnIleAsnHisleuGlyAsnLe 275
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798 TTCACACGAAACAAAGATGCGCGCATCAGCATTTGCGACATATGCGG 846
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139 isProGlnspsglytyrAspglyProGlnIlySerAspTyrProPro 155
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ID AA174708 standard; Protein; 483 AA.
XX
AC AA174708;
XX
DT 21-MAR-2000 (first entry)
XX
DE Neisseria meningitidis ORF 238 protein sequence SEQ ID NO:890.
XX
KW Neisseria meningitidis; Neisseria gonorrhoeae; antigen; vaccine;
KW antigenic; diagnosis; immunogenic; infection; meningitis; septicemia;
KW antibacterial; gene therapy.
XX
OS Neisseria meningitidis.
XX
PN W09957280-A2.
XX
PD 11-NOV-1999.
XX
PE 30-APR-1999; 99WO-US09346.
XX
PR 01-MAY-1998; 98US-0083758.
PR 31-JUL-1998; 98US-0094869.
PR 02-SEP-1998; 98US-0098994.
PR 02-SEP-1998; 98US-0099062.
PR 09-OCT-1998; 98US-0103749.
PR 09-OCT-1998; 98US-0103794.
PR 09-OCT-1998; 98US-0103796.
PR 25-FEB-1999; 99US-0121528.
XX
PA (CHIR ) CHIRON CORP.
PA (GENO-) INST GENOMIC RES.
XX
PI Fraser C, Galeotti C, Grandi G, Hickey E, Masignani V, Mora M;
PI Petersen J, Piza M, Rappuoli R, Ratti G, Scalato E, Scarselli M;
PI Tettelin H, Venter JC;
XX
WPI: 2000-062150/05.

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seq_documentation_block:

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 AC AAB37859;
 DT 26-FEB-2001 (first entry)
 DE Neisserial conserved peptide #42.
 XX Neisseria meningitidis; Neisseria gonorrhoeae; antibacterial;
 KW gene therapy; conserved sequence.
 OS Neisseria sp.
 PN WO200066741-A2.
 PD 09-NOV-2000.
 XX 28-APR-2000; 2000WO-IB00642.
 PF 30-APR-1999; 99GB-0010168.
 PR 09-MAR-2000; 2000GB-0005728.
 XX (CHIR-) CHIRON SPA.
 PA Rappuoli R;
 PI WPI: 2000-687543/67.
 DR Novel Neisserial protein fragments and their corresponding nucleic
 PT acids, useful in the manufacture of medicines for the prevention of
 PT Neisserial infection, and in the manufacture of diagnostic reagents -
 XX Claim 15; Page 58; 157pp; English.
 PS The present peptide is a conserved region of a Neisserial protein.
 CC Neisserial proteins containing this sequence, and the nucleic acids
 CC that encode such proteins, are useful in the manufacture of medicines
 CC for the prevention of Neisserial infection, and in the manufacture of
 CC multi-specific diagnostic reagents.
 XX Sequence 73 AA;
 SQ

alignment_scores:
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 Ratio: 5.411

Length: 73
 Gaps: 0

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ID AAB37855 standard; Peptide: 63 AA.
 AC AAB37855;
 DT 26-FEB-2001 (first entry)
 DE Neisserial conserved peptide #38.
 XX Neisseria meningitidis; Neisseria gonorrhoeae; antibacterial;
 KW gene therapy; conserved sequence.
 OS Neisseria sp.
 PN WO200066741-A2.
 PD 09-NOV-2000.
 XX 28-APR-2000; 2000WO-IB00642.
 PF 30-APR-1999; 99GB-0010168.
 PR 09-MAR-2000; 2000GB-0005728.
 XX (CHIR-) CHIRON SPA.
 PA Rappuoli R;
 PI WPI: 2000-687543/67.
 DR Novel Neisserial protein fragments and their corresponding nucleic
 PT acids, useful in the manufacture of medicines for the prevention of
 PT Neisserial infection, and in the manufacture of diagnostic reagents -
 XX Claim 15; Page 58; 157pp; English.
 PS The present peptide is a conserved region of a Neisserial protein.
 CC Neisserial proteins containing this sequence, and the nucleic acids
 CC that encode such proteins, are useful in the manufacture of medicines
 CC for the prevention of Neisserial infection, and in the manufacture of
 CC multi-specific diagnostic reagents.
 XX Sequence 63 AA;
 SQ

alignment_scores:

Quality: 327.00 Length: 63
Ratio: 5.190 Gaps: 0
Percent Similarity: 100.000 Percent Identity: 100.000

alignment_block:

US-09-303-518D-465 x AAB37855 ..

Align seg 1/1 to: AAB37855 from: 1 to: 63

```

13 CGCAAAATATCCCTTATTCTGTCCATCTAGCGAGTGTGCTGCCGATGCA 62
|||||
1 ArgLysIleSerLeuIleLeuSerIleLeuAlaValCysLeuProMetH1 17
63 TGCACACGCTCAGATTGGCAACGATCTTTATCCGGCAGGTCTCG 112
|||||
17 SALAHISALSerAspLeuAlaAsnAspSerPheIleArgInValLeuA 34
113 ACCGTCAGCATTTGGAACCCGACGGGAATACCACTATTGGCAGCAGG 162
|||||
34 sPaRgGInHISpHeGluProAspGlyLysTyRHisLeuPheGlySerArg 50
163 GGGGAACCTTGGCGGCGCAGGTCATATCGATTGGGA 201
|||||
51 GlyGluLeuAlaGluArgSerGlyHisIleGlyLeuGly 63

```

